THIS WEEK'S National Petroleum NEWS

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American Institute of Mining and Metallurgical Engineers, Engineering Societies Bldg., New York, Feb. 17 to 20.

Northwest Petroleum Association Minnesota Division, Radisson Hotel, Minneapolis, Minn., Feb. 19, 20.

Ohio Petroleum Marketers Association, Deshler-Wallick Hotel, Columbus, O., Feb. 19, 20, 21.

Illinois Petroleum Marketers, Pere Marquette Hotel, Peoria, Ill., Feb. 26, 27.

Western Petroleum Refiners Association, Shreveport, La., March 10, 11, 12.

Pennsylvania Oil Men's Association, Elks Hotel, Philadelphia, March 11, 12.

Tennessee Oil Men's Association, Patten Hotel, Chattanooga, Tenn., March 14.

Independent Oil Men of America, Chicago, March 17, 18.

Michigan Oil Men's Association, Statler Hotel, Detroit, March 19, 20, 21.

American Association of Petroleum Geologists, Roosevelt Hotel, New Orleans, La., March 20, 21 and 22.

American Oil Burner Association and National Oil Burner Show, Hotel Stevens, Chicago, April 7 to 12.

National Petroleum Association, Cleveland, O., Apr. 24, 25.

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JOHN A. BROWN, who recently was elected president of the General Petroleum Corp., California subsidiary of the Standard Oil Co. of New York, dates his connection with the oil industry back to 1911. He then went to California as secretary-treasurer of the Continental Petroleum Co., part of the properties of which later formed the foundation of the original General Petroleum Corp., an Independent company headed by Capt. John Barneson.

When the Continental properties were sold, Mr. Brown worked out of New York for the Consolidated Gold Fields of South Africa, which owned mining, oil and power properties in North and South America. Its Mexican oil properties were sold to the Standard Oil Co. of New Jersey in 1917 and Mr. Brown, who negotiated the deal, became assistant manager for the Standard interests at Tampico. Later, he became general manager there.

After leaving Mexico in 1926, Mr. Brown was attached to the home office of the New Jersey Standard at New York City, spending a considerable time in the Dutch East Indies for that company while on a world tour of its properties. Returning to the United States, he followed Arthur F. Corwin into the producing organization of the Standard Oil Co. of New York and soon thereafter was dispatched to Los Angeles as vice president of the General Petroleum Corp., which it had then recently acquired. He occupied that position from May, 1928, until assuming the presidency Feb. 1 this year.

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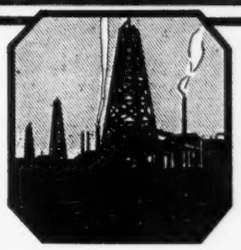

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Vol. 22 **CLEVELAND, February 12** **No. 7**

Conservation Program in California Is at Critical Stage

LOS ANGELES, Feb. 11
By Telegraph

THE crude production situation in California has reached such a critical point that the Los Angeles Clearing House Association called a conference of business organizations Feb. 10 to discuss means of arousing public interest.

L. P. St. Clair, executive vice president of the Union Oil Co. of California, also a vice president of the American Petroleum Institute, told the conference the situation was precarious for the oil industry of the state, and even the entire nation, because of the success of a few "irreconcilables" in defeating efforts at conservation.

He referred both to the failure of these operators to take part in the three months voluntary curtailment program, which ended Feb. 1, and also to their efforts to defeat the putting into effect of the state's gas conservation law through legal technicalities.

A committee of 15 executives of prominent oil companies within the past few days has set about 600,000 barrels a day as the volume of oil California can produce the rest of 1930, without creating a surplus which may affect the general oil market structures not only in California, but in other oil districts of the country also.

Mr. St. Clair appealed to the conference Feb. 10 for public support of the state conservation law, so that litigation in which it is now involved could have priority in the courts. He urged the strengthening of public sentiment in favor of the law.

He said the oil companies in California which have supported the conservation program so far are getting tired of fighting the group of obstructionist companies and may quit, thus bringing into effect an operating program of unrestricted development in which only the fittest would finally survive. He requested the Los Angeles Chamber of Commerce to call a public meeting within the next few days to discuss the situation.

The committee of 15 oil executives at their latest meeting Feb. 10 appointed a fact finding sub-committee to investigate and report on all phases of the curtailment program. W. E. Dunlap, Richfield Oil Co. is chairman of this sub-committee.

The committee of 15 executives held meetings the past few days in which the two alternatives were discussed, of continuing the present curtailment effort, but with the amount of shut-in production increased so that a surplus would be avoided; or of abandoning the efforts at conservation and allowing production to flow unrestricted.

If the effort at proration of production from flush fields is thrown overboard, it is likely that crude oil prices will have to be reduced and the reduction this time may stand for a considerable period.

This committee of 15 has set 609,000 barrels average daily production as the amount of crude oil the California market can absorb during 1930. Total California production on Feb. 1 under the present curtailment method was 710,000 barrels daily average. Since production for over a month has been considerably in excess, the figure for coming months must be brought to less than 600,000 barrels.

Production of more than 600,000 barrels, it is believed, will affect not only crude oil prices and perhaps wholesale and retail gasoline prices on the Pacific Coast, but may also affect the general oil market structure in the eastern part of the country,

California Production Under Proration

THE following figures will show the considerable extent to which the voluntary curtailment participated in for the past three months by most California oil companies has been successful. Daily average output during October was 880,000 barrels. Output for the week ending Nov. 2, when the agreement went into effect, was 859,000 barrels. For three months the figures were as follows, in barrels:

Nov. 2	859,000
Nov. 9	706,000
Nov. 16	674,500
Nov. 23	699,500
Nov. 30	704,500
Dec. 7	698,700
Dec. 14	693,100
Dec. 21	710,600
Dec. 28	689,400
Jan. 4	700,500
Jan. 11	699,700
Jan. 18	695,300
Jan. 25	702,200
Feb. 1	710,600

Curtailment in California Proposed for Coming Three Months

Under plans still tentative the state has been divided into the following three main areas, although each field will receive separate consideration in the detailed plans. Figures given are barrels, except where per cent is shown.

District	Estimated Potential Production	Present Production	Present Reduction	Present Per Cent Reduction	Proposed Reduction	Proposed Allowable Production	Proposed Per Cent Reduction
San Joaquin Valley	253,600	159,700	93,900	37	109,300	144,300	43
Coastal	141,400	94,150	47,250	33	50,800	90,600	36
Los Angeles Basin	664,700	450,800	213,900	32	309,900	354,800	47
Total	1,059,700	704,700	355,000	33*	470,100	589,600	44*

*Average

due to a considerable surplus shipped east through the Panama Canal.

It is generally recognized that there is little hope that the California gas conservation law, will offer any help in relieving the situation here for the coming months. Passed almost a year ago, with the help and assistance of the oil companies, as a means of conserving natural gas in the state and also providing a method for holding crude production to market demands, this statute now is in tangled litigation.

California state officials face a bitter court fight, led by some of the independent operators and smaller oil interests, in an effort to enforce this statute. The law is being attacked as unconstitutional and on various other grounds.

The situation here comes to a critical point just now, because, on Feb. 1, the voluntary proration or curtailment plan, adopted Nov. 1 to run for three months, expired. When this plan was entered upon it was thought that before its expiration the California gas law would be in effect and such provisions as voluntary agreements of operators would not be needed.

The immediate expedient is an extension of the agreement, with some changes, for another three months. It is felt, however, to relieve a threatening situation that the amount of shut-in production must be increased and that some 21 indepndent refineries in the Los Angeles Basin fields must be brought into the agreement, if the market structure is to be maintained.

It is also felt that certain operators who agreed to the terms of the curtailment agreement which has just expired, but who violated at least the spirit of the agreement by subterfuge must change their tactics.

In Kettleman Hills, the new field of great possibilities as far as large output of high grade crude is concerned, one third of the area of which is public domain and therefore under national government supervision, interested parties will meet Feb. 12 to form the Kettleman Hills Conservation Association.

The operating plan here calls for a board of governors consisting of one representative of each operating company, one representative for permittees and one for fee land owners not otherwise represented. This board is to perfect a working organization to the end that the field may be developed in an orderly manner. The plan of development considered most favorable by operators provides for the spacing of wells by an umpire or technical committee to obtain slow and orderly development. A percentage of the returns from crude produced would be prorated among all operators by the formation of a drainage fund.

It will be recalled that operators on the public domain land in Kettleman Hills were brought into operating agreements largely through the efforts of Secretary of the Interior Wilbur which run until 1931. Operations on fee land in the Kettleman Hills territory later made necessary the bringing of the operators on fee land into any general agreement for the development of the area.

As indicating the possibilities for oil production from this territory Secretary Wilbur, speaking over the radio in Washington Feb. 6, said that Kettleman Hills held a potential production of rich gasoline crude estimated at from 2,500,000,000, barrels to 4,000,000,000 barrels and untold billions of cubic feet of natural gas.

"Poor methods of engineering and bad handling may bring about a loss running into billions of dollars," said Secretary Wilbur over the radio. "No one can be sure of conditions underground. Some plan of unit operation must be put into effect if a good result is to be obtained."

The voluntary curtailment program entered into Nov. 1 by a majority of operators in the flush fields, although succeeding to an unexpected degree in reducing production of crude in California, was recognized to have several faults. When some operators hesitated to renew the agreement Feb. 1, for another three-month proration period, conservationists prepared the new machinery that it is hoped to have in working order by Feb. 15.

The committee of 15 operators is arranging a program for curtailment of production not only in the flush fields but also in the fields where active development has been in abeyance for several months and where, therefore, the production is comparatively steady.

This committee consists of the following California operators: Paul N. Boggs, Union Oil Co.; W. H. Berg, Standard Oil Co.; W. E. Dunlap, Richfield Oil Co.; J. A. Birmingham, The Texas Co.; J. H. Jenkins, Associated Oil Co.; J. Stair, Shell Oil Co.; J. A. Brown, General Petroleum Corp.; A. H. Bell, Continental Oil Co.; H. R. MacMillan, MacMillan Petroleum Co.; A. T. Jergins, Jergins Trust Co.; S. B. Mosher, Signal Hill Oil & Gas Co.; R. A. Sperry, General Petroleum Corp.; W. C. McDuffie, Pacific West-

Small Production Gain In Oklahoma

TULSA, Feb. 8.—Due to open flowing of wells in the East Earlsboro pool the first four days of this month, Oklahoma's production showed a little gain over the previous week, jumping to around 630,000 barrels daily. Kansas held to its customary figure of 110,000.

With East Earlsboro settling down to a proration of 75 per cent, the state is certain to show a decline to 600,000 barrels daily or under, as fixed by the corporation commission as market demand.

Only the Oklahoma City and East Earlsboro pools are troublesome. In the former, the rush of completions, each permitted to flow 24 hours to make a thorough job of cleaning out, puts into the tank each day a large amount of oil over what would be realized from the wells permitted to produce on regular schedule.

No change in crude prices occurred during the week in the Mid-Continent. There is a little oil coming out of storage, judging from comment made by principal companies on their own operations, but the total is not imposing.

ern Oil Co.; H. P. Grimm, umpire Santa Fe Springs, Ventura Avenue and Elwood fields and Neal H. Anderson, umpire Signal Oil field.

Seven members of this committee have been selected as advisers and placed in control of various fields.

R. R. MacMillan will act as counsellor for Santa Fe Springs; A. T. Jergins for Long Beach; W. C. McDuffie for Elwood; J. A. Brown for Ventura; A. H. Bell for Seal Beach; S. B. Mosher for Maricopa in the Midway district and R. A. Sperry for Round Mountain, Mt. Poso and Kern River fields in San Joaquin Valley.

Proration schedules for flush fields are now being revised and new schedules drawn up for the settled areas. Prior to the formation of these statewide curtailment programs and upon the request of purchasing companies, the potential production for the principal producing fields will be reestablished during the next week or so. Every well capable of production will be opened wide for 6 days, after which the beans will be put back on.

California state officials are prepared for a long hard battle in their effort to enforce the gas conservation law against the decidedly vigorous action antagonistic operators have taken since the reopening of the hearing on the Santa Fe Springs field Feb. 3.

The Bell-View interests and the Wilshire Oil interests appeared before Superior Judge Hazlett on that date prepared to present every possible case that might be considered to oppose the present suit brought by the state to enjoin California operators from wasting natural gas.

Their attorneys engaged the attention of the court on Feb. 3, 4, and 6 and 7, in their endeavor to show that a general demurrer should be granted on the grounds that the gas conservation law is unconstitutional. They claim the statute does not provide for due compensation to operators who have to shut their wells down, that the wording of the law is indefinite.

Enabled, through voluntary curtailment measures in effect the past three months, to observe the effect of pinching back producing wells, the independent operators are prepared to offer expert testimony that wells once beaned in do not yield the production they were capable of. They claim that gas cannot be repressured in the same zone from which it originated and that, if the gas is forced under high pressure into a well, it will force the inherent oil and gas in the producing zone away from the bottom of the well.

Finally these operators offer the theory that wells located near the crest of the structure will, if production is curtailed past a certain point, produce a greater percentage of gas per barrel of oil than good practice dictates, and greater than that figure set by the state officials.

Texas Operators Seek More Leeway on Agreements

(By Telegraph)

HOUSTON, Feb. 11

HAMPERED in their efforts to effect adequate curtailment of crude oil production to market demand in Texas, oil operators are taking their case to Gov. Dan M. Moody.

Special legislation will probably be asked, broadening the powers of the state railroad commission, which administers the state's conservation laws and giving more definite protection to operators complying with its orders.

Production curtailment programs are handicapped in Texas by the peculiar nature of the state anti-trust statutes.

A committee of five Texas operators conferred with Gov. Moody at his home in Austin Feb. 10 after a conference of operators in Austin earlier in the day. They wanted to determine the attitude of the governor towards permissive legislation looking toward cooperative development of Texas oil fields. Another committee of operators is to visit the governor later this week with more definite recommendations as to the nature of the legislation desired.

The operators discussed with the governor the bill now pending in the state legislature introduced by Representative R. J. Long, of Wichita Falls. This bill provides for conservation of oil and gas, authorizes agreements for unit or cooperative development and provides that, when such proposals have been approved by the railroad commission, they shall be held not to violate laws prohibiting or relating to trusts, monopolies or conspiracies in restraint of trade.

It is known that a number of operators are opposed to this pending bill and operators attending the conference at Austin will attempt to develop a type of bill to discuss with the governor upon which a majority of independent operators can agree.

Gov. Moody will be asked to refer the matter to his attorney general for an opinion as to the legality of such a measure, and if favorably ruled upon, to introduce it as a bill in another special session of the legislature the governor is expected to call as soon as the present assembly closes next week.

Decision to ask for special legislation was reached at an executive meeting of the Mid-Continent Oil & Gas Association's Texas division steering committee in Fort Worth, Feb. 6.

The only concrete action as yet taken toward actual curtailment came in recommendations of the Yates field advisory committee on prorating practice for reduction of allowable yields from 130,000 to 100,000 barrels daily in that West Texas district. This requires approval of the railroad commission.

Consideration was given to production cuts in the Howard-Glasscock and Winkler county areas of West Texas, where January averages were 26,314 and 88,360 barrels daily, respectively.

Winkler permitted production remains at the 150 barrels maximum prorating allowance, although actually producing less than 90,000 barrels daily for months. The maximum of 37,500 barrels allowable in Howard and Glasscock counties has not materially exceeded present exploitation for several months.

In the Refugio district of southwest Texas it is hoped to make some curtailment below the approximately 25,000 barrels daily exploitation at present. In the Gulf Coastal salt dome territory it is believed individual operators will find it possible to curtail deep pay operations.

Ways and means are being sought to remedy a perplexing situation in the Gray county district of the Panhandle region, where Gulf Production Co. is operating in moderation but has withheld from official participation in curtailment work.

The Gulf runs its own crude there exclusively. It takes the position other operators in the district forced a considerable part of the drilling that the Gulf hoped to avoid at the time, and this fact is now responsible for Gray county congestion.

Committee on Unitization Appointed by Reeser

By Telegraph

NEW YORK, Feb. 11.—A standing committee on unitization was appointed by President E. B. Reeser of the American Petroleum Institute today. W. M. Davis of the Phillips Petroleum Co., Bartlesville, is chairman of the new committee. It will function to promote unit operation as a part of the activities of the new production division of the organization.

Activities of the three chief divisions of the institute were planned here today at a meeting. After a general session of all divisions, separate group meetings were held to discuss individual problems.

Tariff Adherents Emphasize Needs Of the Small Producers

WASHINGTON, Feb. 8

ALTHOUGH Washington believes a tariff on petroleum and its products is still considerably short of accomplishments, the efforts put forth this week by the delegation of Mid-Continent and other southwestern oil producers and royalty owners to lay the case of the vast army of small producers before members of the Senate and House of Representatives have won many new supporters, it is generally conceded here.

The delegation of approximately 250 men, 225 of whom arrived Monday noon on a special train from the west, was active every minute of the days and evenings at meetings with senators and representatives, nearly all of whom they interviewed, with President Hoover, with members of the Federal Oil Conservation Board, and with a delegation of the American Federation of Labor. Its endeavors culminated Saturday morning with a hearing before the house ways and means committee.

That political lines may be drawn but with the Democrats on the protective side of the line instead of the usual Republicans, was indicated at the conclusion of the presentation of the oil men's case by Wirt Franklin, once a lawyer but now a successful Mid-Continent producer and president of the Independent Petroleum Association of America.

"I appreciate this hearing," said Mr. Franklin in concluding.

"I'm glad you do, because I think that's all you are going to get," commented Congressman Rainey of Illinois, a Democratic member of the committee.

The lower house is preponderantly Republican and the vote of a good sized block of the Republican representatives will be necessary if a tariff on petroleum and its products is enacted.

The situation in the senate is different because the insurgent bloc, under the leadership of Senator Borah of Idaho, holds the balance of power.

If the support of Senator Borah can be won by the oil men—and many believe he will give his support if he is convinced that protection is necessary—there are good prospects for approval of an oil duty in the upper house. However, there is still doubt among some senate leaders that Senator Borah can get enough of the irregular Republicans and Democrats together to force action on the tariff bill that is now pending in the senate.

The Democratic members of the ways and means committee seemed to enjoy the coming of the delegation. In a way its coming was a reflection upon the work of the Republican members in that they had not extended their protective policy far enough but were willing now to make a gesture to cover their fault.

Besides Mr. Franklin the committee was addressed by Russell Brown, of Ardmore; Earl Calloway, of Amarillo, James H. Gardner, of Tulsa, and Attorney General J. Berry King of Oklahoma.

In opening the hearing Chairman Hawley of the committee said: "This hearing is for the receiving of facts that may be of use in the event of the tariff bill coming back from the senate amended as to petroleum."

This indicated that Chairman Hawley was not giving consideration to the tariff bill introduced in the house Feb. 4 by Congressman Hastings of Oklahoma. The Hastings bill calls for a duty of $1 a barrel on crude oil and 50 per cent ad valorem on refined products.

The oil men's speakers were repeatedly interrupted by questions or comment from committee members. When Mr. Brown said that the Independent producers in West Virginia, Pennsylvania, Ohio and other states were in sympathy with the delegation, Congressman Garner of Texas, ranking minority member of the committee, said:

"If you can induce the delegations from those states to support you, a bill carrying a duty on oil will be reported out of this committee and passed by both houses."

This assertion was greeted with a roar of applause. Previous to that interruption Mr. Brown submitted a telegram of approval by small well owners at Wichita Falls sent to the oil delegation, and a telegram from Nowata producers to President Hoover and Senators Pine and Thomas of Oklahoma.

"Unless we are given protection against foreign oil these wells will be forced to shut down, causing distress throughout the oil fields, which of course, means distress for businesses getting support from the producers," said Mr. Brown.

"What is the attitude of the producers you do not represent?" asked Representative Crowther of New York. Mr. Brown said the delegation had not been able to ascertain their views. Representative Rainey asked the names of the importers and Mr. Brown named the Standards of New York and New Jersey, the Royal Dutch-Shell, and the Gulf.

"The Gulf is the Mellon interest, isn't it?" asked Mr. Rainey and Mr. Brown admitted that that was what was commonly called the Mellon interest. Continuing, he pointed to the "alarming" increase in the importation of refined products from Curacao and Aruba, last year's imports being 250 per cent of the imports of the year before. He said that imports would continue to increase and that both refined and crude oils were coming through the Atlantic and Gulf

Last Week with Oil Men In Washington

Feb. 3.

Steering committee met with oil state senators and representatives.

Feb. 4.

General meeting of delegation with oil state senators and representatives.

Committee of 13 conferred with President Hoover and Secretaries Hurley and Wilbur of Federal Oil Conservation Board.

Feb. 5.

Members of Senate canvassed about oil tariff.

Feb. 6.

Members of the House canvassed.

Wirt Franklin attends evening musical at White House and later discusses oil situation with President.

Committee lays recent crude price cut before Secretary of Commerce Lamont.

Feb. 7.

Canvass of house members continued.

Wirt Franklin and Secretary Hurley confer with President at White House luncheon.

Delegation for American Federation of Labor calls on Wirt Franklin to get information about proposed tariff.

Feb. 8.

Hearings on Hastings oil tariff bill before house ways and means committee.

ports. He filed a brief on behalf of the delegation.

Noting that members of the committee were or seemed to be only faintly informed as to whom the delegation represented. Mr. Franklin said the delegation represented the so-called Independents producing half the crude in the country and socalled because they were not identified with the big refining and importing interests.

"They (the Independents) are the ones who, unless they are sorely hurt, as now, do not squawk," said Mr. Franklin. "If they don't get relief they will be exterminated."

After telling about the big refinery capacity on Aruba and Curacao islands, in which he said the owners used German and Belgian materials and employed cheap, native labor, and the big imports, Mr. Franklin said he knew the members of the committee were thinking of the consumers.

"Have the consumers received any of the benefits?" asked Mr. Franklin. "Not one penny" said he, answering his own query. "The same companies that are importing, unless something is done, will ultimately get all the oil resources of the country into their hands and then you will have a grand monopoly."

The seaboard refiners, he asserted, took the benefit of the lower cost of Venezuelan oil, putting on all that the traffic would bear, increasing their imports and their profits.

Low prices, Mr. Franklin pointed out, cause wastefulness by inviting the burning under boilers of oil that should be cracked into gasoline. He said that, of course, industries wanted cheap fuel oil but the burning of oil under boilers was a waste that could not be justified. He said that that had demoralized the coal industry and thrown 50,000 miners out of work. A representative of the National Coal Association was present to back up that declaration if any one challenged it.

"I predict and believe it when I say it, that not one representative of these importing companies will appear before you, as we are doing, to give you information why you should not put petroleum and its products on the dutiable list," said Mr. Franklin. "No, they will get the American Automobile Association, claiming to represent automobile owners, and the American Manufacturers Association to oppose a duty on the assertion that a duty will increase prices."

—Harris-Ewing Photograph

Wirt Franklin, president of the Independent Petroleum Association of America and leader of the tariff drive on Washington; Elmer Thomas, senator from Oklahoma; and Wade H. James, president of the Mid-Continent Royalty Owners Association, snapped at the station at Washington when the special train arrived

The charge that the companies having foreign production had precipitated the situation by lack of good faith in carrying out curtailment was also made by Mr. Calloway. A member of the committee wanted to know why the delegation had come at this time.

"The breaking of faith is the immediate cause of our being here at this time," Mr. Calloway declared.

To give the committee an idea as to the widespread interest in the matter, its attention was directed to the fact that Chief Justice Mason and Associate Justic Riley of the Oklahoma supreme court, Messrs. Capshaw and Childress of the Oklahoma Corporation Commission and State Senator Parker of that state were present.

Mr. Franklin read to the committee an editorial from the Feb. 7 Wall Street Journal which concluded:

"Much as some of us may dislike it, the only hope for oil stability is further centralization of ownership. Oil lands must pass more and more into the hands of corporations able and willing to defer recovery. The cry of the small owner when he is alarmed by real danger of drainage is that he must realize within his lifetime. He must do that by drilling or take his chances in bargaining with one or two possible buyers for the sale of his holdings."

Leaders of the oil delegation regard this editorial as definite evidence of their assertion that equality of opportunity was being squeezed from the producing division of the industry by the importation of crude and refined oils by a few companies which were tending toward monopoly.

Says "No" On the Tariff

TAKING issue with James H. Gardner in your Feb. 5 issue, "Shall we have a Tariff?" By all means No.

How inconsistent it would be to think of our refineries sending their merchandise broadcast to foreign countries, and then want a tariff to prevent foreign refineries of oil and gasoline from sending their merchandise into this country.

In the name of common sense, how can our refineries send their oil and gasoline abroad in competition with foreign markets and then want a wall to prevent the foreign producers competing with us in our own country.

By F. L. Barber,
Greene County Oil Co.
Jefferson, Ia.

Tariff Adherents Impress Washington

By R. B. Stafford
N. P. N. STAFF WRITER

WASHINGTON, Feb. 8

SELDOM has Washington witnessed a conquest like the storming of Capitol Hill by the oil men.

It is customary in Washington, whenever a group of any kind wishes to foster or forestall a piece of legislation, to hire one or several high pressure lobbyists. The oil men did nothing of the kind. They laid the facts of the crude production situation as they see and feel it before the senators and congressmen in their own manner but with the freshness of the winds that sweep across the western country from which they came.

The spontaneity of the pilgrimage to Washington allowed little time for the drafting of a program. The idea for the pilgrimage was conceived at the Tulsa mass meeting Jan. 29 and Feb. 1 more than 200 producers and royalty owners were bound for the national capitol aboard a special train.

En route to the national capitol, the delegates studied pro and con the whole subject of a tariff on petroleum and its products. It was intended to present the arguments to Congress. Just how, there was no definite idea and there was none until after the special train reached Washington.

Only a few minutes after arrival, at conferences with senators and congressmen from the Mid-Continent oil states and with Secretary of War Hurley, of Oklahoma, it was decided to seek an audience with President Hoover and to hold a general meeting of the delegation at which senators and congressmen would be asked to be present.

The general meeting was held Tuesday forenoon in the house caucus room with only a few congressmen from outside the Mid-Continent oil states present. It was at that meeting that Wirt Franklin made his appeal for a petroleum tariff as a national defense measure, as reported in NATIONAL PETROLEUM NEWS for Feb. 5.

Late Tuesday afternoon a committee of 13 from the delegation was granted a White House audience. Secretary Hurley and Secretary of the Interior Wilbur, both members of the Federal Oil Conservation Board, were present.

Mr. Franklin headed the committee which also comprised: R. B. Brown, Ardmore; H. B. Fell, Ardmore; Tom Cranfill, Dallas; V. S. Welch, Artesia, N. M.; Robert Winburn, attorney general of Colorado; A. C. Trumbo, Muskogee; J. Edward Jones, New York and Tulsa; W. S. Hallanan, Charleston, W. Va.; Ray Phebus, Thermopolis, Wyo.; Thomas Flynn, Robinson, Ill., and Marion Lee, Wichita, Kans.

Mr. Franklin presented the producers' case to the president who was described afterward as having been an attentive listener. That Mr. Franklin made an impression is attested by the fact that he received an invitation to the Thursday evening musical at the White House and to take luncheon with the president Friday, Feb. 7.

At a general meeting in the Mayflower hotel Tuesday night members of the delegation reported having called on many senators during the afternoon to lay the oil men's case before them and to ascertain what support the oil men could expect. Indications were favorable for a general canvass of the senate, so the entire senate roster was split among various committees of two to four men each. These committees swept through the Capitol and senate office building Wednesday and before night members of the upper house had received in the plain words of the laymen the facts concerning the crude oil production, the price situation and the part foreign oil is playing in American markets as the Independent producers of the Mid-Continent see those facts.

IT was decided Tuesday to canvass members of the house ways and means committee. E. B. Howard, former congressman from the first Oklahoma district, had introduced in the house late Tuesday by Congressman Hastings of Oklahoma the tariff bill he introduced in the seventieth Congress, which bill called for a duty of $1 a barrel on crude oil and 50 per cent ad valorem on refined oils. This was done to have a measure pending before the house when the ways and means committee was to be asked to grant a hearing to the delegation.

Mr. Howard called on Chairman Hawley of the ways and means committee and Congressman Garner, the ranking minority member, and arranged for a meeting Saturday morning.

Following canvass of the senate members and announcement that encouragement had been received from some of the important ones including "Jim" Watson of Indiana, the Republican floor leader, and Senator Borah, the "insurgent" leader, and that only a few senators had voiced opposition to the proposal, a canvass of the house members was undertaken Thursday and Friday.

Although many of the senators were non-committal as to the attitude they would take when actually confronted with the tariff bill, they did express open-mindedness, reported oil men who called on them. Among those who expressed opposition was Senator Walsh of Montana, who was the "prosecutor" of the senate committee on public lands that investigated the leasing of the naval petroleum reserves several years ago.

THE oil men believe they have made inroads on the Democratic free traders and hope to get active support from several of that group. The free trade principle was abandoned by the party in the 1928 campaign.

A committee Thursday was received by Secretary of Commerce Lamont, who is chairman of the president's business stabilization commission and a member of the oil conservation board. Secretary Lamont had been unable to attend the Tuesday audience with the president and it was at Mr. Hoover's suggestion that the Friday meeting was arranged.

Although no announcement was forthcoming from either the committee or the commerce department as to what was discussed, it is understood the question of the Jan. 15 price cuts was considered and not a tariff.

Friday Secretary Lamont went to New York where it was expected he would take up the price cut questions with the Standard Oil Co. of New Jersey and possibly the Standard Oil Co. of New York. Walter C. Teagle, president of the New Jersey company, was one of the business leaders called to Washington by the President last fall following the stock market collapse. The New Jersey company owns control of the Humble Oil & Refining Co. and Carter Oil Co. and the New York company owns control of the Magnolia Petroleum Co., the companies that cut the price of crude oil Jan. 15.

Producers in the delegation at Washington believed the price cut question was a logical one for the

business stabilization commission because low crude prices affect not only the producers of the southwestern states, but an army of royalty investors, bankers, farmers and general business because low prices mean a curtailment in the buying power of that region.

Conducting an educational campaign and canvass of every member of both houses of Congress who could be reached in the capitol was a feat that awed political Washington. Here was a delegation of business men, most of whom were on their first visit to the national capitol, that had undertaken and accomplished a canvass such as even the great number of experienced newspaper correspondents seldom attempted.

The delegation did not receive much consideration from the press on their arrival but when the reporters at the capitol saw the activity and sincerity of the group, notices of what they sought began to appear in the eastern newspapers. At first the oil men constituted "just another delegation," but when they got organized it was seen that they worked in a different way.

The delegation was encouraged by telegrams of support from the Southeastern Ohio Oil and Gas Association, the Western Kentucky Oil Producers Association which met this week at Owensboro, and the newly formed North Texas Oil and Gas Association which met Thursday in Wichita Falls.

The delegation set up general and press headquarters in the Mayflower hotel Monday. A half dozen or so Mid-Continent newspaper men accompanied the delegation and they were designated a publicity committee with Paul Hedrick, oil editor of the Tulsa World, as chairman.

There was virtually no social activity, as the men spent their days on Capitol Hill or at government offices off the hill, and their evenings in committee meetings or preparing their next day's activities. The chief diversion was a dinner to the workers and several members of congress at the Mayflower Wednesday evening after the first objective, the canvass of the senate, had been obtained.

Mr. Franklin was accompanied by Secretary Hurley to both the musical and the luncheon at the White House. He was presented at the musical to Speaker Longworth of the house, several members of the cabinet he had not already met, and many army and navy officers. Among the guests were Thomas W. Lamont, Felix Warbur, and Silas Strawn, the bankers. After the musical Mr. Franklin and Secretary Hurley again talked oil with the President. The oil conversations were continued the next day at luncheon but their nature was not revealed.

The delegation from the southwest left Washington Saturday evening for home but Mr. Franklin, Mr. Fell, Russell Brown, and George Gibbons, all of Ardmore; Frank Head of Duncan, Okla., and a few others remained in Washington.

The Small Producer is Put on the Map

By V. B. Guthrie
N. P. N. STAFF WRITER

THE oil industry owes the band of operators from the Mid-Continent who made their tariff drive on Washington a week ago a vote of thanks. Particularly do the owners and operators of wells of small production in the old settled fields of the country owe that band a debt of gratitude.

Whether a tariff on imported oils is voted by this congress does not seem to us as important as the fact that the place of this class of oil producers in the oil industry has been emphasized on the public, on congress and upon the administration at Washington for practically the first time. The chances are that they will not be forgotten or disregarded in later discussion of conservation and the oil needs of the future, whether it revolves around the tariff or some other issue.

The industry has talked conservation for several years. It has debated conservation laws and conservation methods within itself, at its own meetings, and it has debated the same subject with the Federal Oil Conservation Board and other outside agencies. In all that discussion, however, we do not recall having seen much attention paid to what we have called the small producer—the man who has properties upon which the wells do a barrel or so of oil a day, perhaps even less than a barrel.

There are a good many of this type of producer and they are scattered over many parts of the country. Individually, their output of crude is hardly a drop in the bucket, in terms of total oil consumption today, yet there is a backlog of 500,000 barrels a day production from around 300,000 wells of this class, owned by probably thousands of individuals.

This is production that can be counted upon. The yield from the properties with these wells can be estimated many years into the future. New flush fields may come into the picture, rise to their peak output and drop into the insignificance of settled production or pass out of the picture entirely, due to water encroachment or some other cause. This settled production goes on, however, provided that its owner gets a price for his oil that at least allows him to operate without a loss.

This class of production today is vital to a continuance of the oil industry in some parts of the country. Refineries would go out of existence were the settled production upon which they are dependent to stop; small plants in terms of gasoline output, it is true, and yet these plants are recognized and established businesses.

When the industry has talked conservation and the needs of the future, it has been in terms of new sources of supply, of the flush fields of this country, of foreign supplies, of the needs of the large oil companies and so on. Lacking a spokesman, the so-called small producer has not made himself heard in the general din of discussion, in spite of his importance in the aggregate.

Now the small producer seems to have found a leader in Wirt Franklin, who took his espousal of a tariff on oil as a needed help to this class of producer straight to President Hoover. It is not likely that he will remain silent in the future when conditions which affect oil production are being talked, whether the issue is the tariff or some direct phase of conservation. He should not keep silent. Let him keep at it until, as spokesman for the small producers, he is given as serious consideration in oil industry discussions as the representatives of other interests.

Natural Gasoline Rates Cut

WASHINGTON, Feb. 10.—In answer to complaints made by the Independent Oil Co. against the Santa Fe and other railroads, the Interstate Commerce Commission has ordered the rates on natural gasoline from 48 Group 3 points to Johnstown, Altoona and Portage, Pa. cut not later than May 5. A. D. Miller Sons Co., which, like the Independent is a blender using natural gasoline, also complained about the rate to Pittsburgh. The rate regulating body, however, said that the 60.5-cent rate to Pittsburgh, was not unreasonable.

The Johnstown rate is to be cut from 63.5 cents to 62 cents and the rates to Altoona and Portage from 69 to 65 cents. The cuts were ordered on the theory that the existing rates were out of line with rates on Natural gasoline from Group 3 points to Olean, N. Y., Baltimore, Md. and other eastern points prescribed in the case brought by the Tidal Refining Co. and decided in December, 1929.

The complaining blenders asked for rates of 54.5 cents to Pittsburgh, 57.5 cents to Johnstown and 63 cents to Portage and Altoona. The railroads asked that the question raised in the complaints of the Pennsylvania blenders be postponed until decision was made in the General Petroleum Investigation.

Tydeman Vice President Of Shell Corporation

ST. LOUIS, Feb. 10.—Dr. F. W. L. Tydeman has been elected vice president of the Shell Petroleum Corp. according to an announcement by U. deB Daly, president. He will be in charge of manufacturing activities of the company. Until his election to the new office Dr. Tydeman was manager of the manufacturing department.

Dr. Tydeman began his professional career as a physician after graduation from North Carolina Medical College in 1912. He soon became interested in chemical laboratory work and in 1915 became technologist at the Martinez refinery of the Shell Oil Co. of California.

Two years later Dr. Tydeman was made assistant superintendent of the Shell refinery at Cushing, Okla. and later was made assistant technologist at the Tulsa offices. From there he was promoted to be general superintendent of the Wood River, Ill., refinery.

On a leave of absence in 1921 and 1922 Dr. Tydeman went to West Borneo, Java and Sumatra to modernize refineries of the Batavia Petroleum Co. and the Sarawak Oil Field, Ltd. On his return he resumed his former position at Wood River which he held until he was made manager of the manufacturing department in June, 1928.

New Thermal Data Tables Issued by B. of S.

CLEVELAND, Jan. 13.—"Thermal Properties of Petroleum Products" is the title of a valuable pamphlet recently issued by the U. S. Bureau of Standards, as Miscellaneous Publication No. 97.

A brief discussion of fundamental units and constants, is followed by tables giving compilations of thermal data found in the literature with additional unpublished results obtained at the Bureau. The tables include thermal expansion coefficients of petroleum products and of gasoline-benzol mixtures, gross and net heats of combustion of crude oils and refined products, specific volumes, and thermal conductivities of petroleum products.

Specific heat data include heat of oils in calories per gram, B.t.u. per pound, and B.t.u. per gallon and specific heats of vapors and of asphalt. Latent heats of vaporization and a table giving the heat content of petroleum products are also included.

Mathematical formulae for the derivation of the data given are included in the publication, with short discussions of the methods employed. These tables and the accompanying discussions present available data in compact form of great value to the refiner, especially for use in thermodynamic calculations in design of equipment and in the study of reactions occurring in refining processes.

Spanish Monopoly Will Build Refinery

NEW YORK, Feb. 8.—A 5000-barrel refinery, complete with cracking units and equipment for processing lubricating oil is to be built by the Spanish Monopoly at Barcelona, according to J. Primrose, vice president of the Foster Wheeler Corp., 165 Broadway. Bids for construction will be received up until April 21, 1930.

According to Mr. Primrose who said that construction of this refinery was only the first step in a program contemplated by the Spanish syndicate, crude requirements probably will be filled from the Mid-Continent or Venezuela. A New York company said this past week that the sale of its properties in Venezuela to a Spanish concern was being negotiated, but would not confirm a report that the sale had been made to the Spanish Monopoly.

Fuel Specifications Published

CLEVELAND, Feb. 10.—The U. S. Bureau of Standards has published a booklet giving standard specifications for fuel oils as recently established. The publication is designated "Domestic and Industrial Fuel Oils, Commercial Standard CS12-29." Single copies may be obtained free from the Bureau and additional copies at 5 cents each from the government printing office.

Specifications cover six grades of oil. Three are for domestic use and three for industrial uses.

American Petroleum Institute report of refinery operations in the United States for the week ended Feb. 8, compared with the week ended Feb. 1

Districts	Per Cent of Capacity Reporting	Daily Av. Crude Run to Stills Wk. Ended Feb. 8 (Barrels)	Daily Av. Crude Run to Stills Wk. Ended Feb. 1 (Barrels)	Per Cent of Reporting Capacity Operated Wk. Ended Feb. 8	Per Cent of Reporting Capacity Operated Wk. Ended Feb. 1	Stocks Reported in Thousands of Barrels: Gasoline Stocks Feb. 8	Gasoline Stocks Feb. 1	Gas & Fuel Oil Stocks Feb. 8	Gas & Fuel Oil Stocks Feb. 1
East Coast	100.0	454,500	464,360	75.0	76.7	7,892	7,712	6,850	7,017
Appalachian	91.0	89,100	84,300	76.4	72.3	1,528	1,480	686	723
Ind.-Ill.-Ky	98.6	263,300	294,900	74.2	83.1	7,070	6,797	3,068	3,237
Okla.-Kan.-Mo.	89.1	264,300	260,300	64.2	63.7	4,447	4,390	2,919	3,021
Texas	90.3	527,700	542,300	75.1	77.2	7,579	8,162	12,527	12,416
La.-Ark	96.8	186,700	182,400	71.3	69.6	2,466	2,425	2,234	2,207*
Rocky Mountain	93.6	54,100	55,000	38.8	39.5	2,674	2,576	1,022	1,017
California	99.3	590,000	593,500	66.2	67.5	15,641	15,638	109,651	108,892
Total U. S.	95.4	2,429,700	2,477,000	69.7	71.4	49,297	49,180	138,957	138,530*
Texas (Gulf Coast)	99.4	410,000	430,500	78.3	82.2	6,534	7,084,000	9,821	9,644
La. (Gulf Coast)	100.0	129,200	115,700	87.6	78.4	2,093	2,070,000	1,407	1,393*

*Revised by transfer to unfinished oils.

Review of Late Production News

AN INCREASE of nearly 20,000 barrels in daily average production of crude in Oklahoma brought the country's total daily average up to 2,613,800 barrels the week ended Feb. 8, a gain of 18,800 barrels over the previous week, according to the American Petroleum Institute.

Imports of crude again decreased, being at the rate of 196,860 barrels daily. That is a decline of 9710 barrels from the previous week.

Total new crude supply was 2,810,600 barrels for the week ended Feb. 8, compared with 2,801,570 barrels the previous week.

The week's largest changes occurred in the Earlsboro and Oklahoma City pools of Oklahoma, the former gaining 15,100 barrels and the latter 12,500 barrels.

Yates field in West Texas fell off 3650 barrels and Van Zandt 2000 barrels. Refugio county, coastal Texas, gained 3800 barrels. Salt Creek declined 4350 barrels and Santa Fe Springs 4700 barrels.

California

FACED with the ultimatum of either joining in the cooperative voluntary curtailment program or having the price of crude oil substantially reduced California producers have been busily engaged during the past week in an effort to bolster up the proration movement.

A tentative plan has been proposed by the California industry providing for reduction of the state's daily output during 1930 to 609,000 barrels. In order to secure this figure as an average it is estimated that production during the remainder of the year will have to be cut to below 600,000 barrels per day.

An interesting production test is expected during the coming week at General Petroleum Corp.'s Ferguson 2 drilling at 2545 feet in oil sand in the tidelands offshore from the Rincon field.

Built at the end of an 1800 foot steel pier, the well is thought to have penetrated the pay sand found approximately 175 feet lower on the mainland. If commercial production is obtained other tideland projects in this area will be started. Richfield Oil Co. and Honolulu Consolidated Oil Companies have undersea holding in this district.

Operators in the Kettleman Hills field have asked the court hearing the injunction suit brought by the state to prevent waste of natural gas on the north dome of that area, to continue the hearing for a period of 30 days.

Current production in this country by pools is found on page 105.

Texas, New Mexico, Louisiana

A RECOMMENDATION of the Yates field advisory committee on prorating practice calls for reduction in market outlet from that West Texas district from 130,000 to 100,000 barrels daily. The recommendation, which requires approval of the Railroad Commission of Texas, is in line with a movement of Texas operators to curtail production generally to a balance with crude oil demand.

In Lea county, New Mexico, where the Hobbs district gives promise of ultimate major development, drilling operations hold about the only current interest. There have been no important completions since Humble Oil & Refining Co.'s No. 1 Bowers recently came in for estimated initial production of more than 9000 barrels daily. Although shut in after completion under conservation policies made possible because of its having been drilled on a federal permit, the Bowers well tested 165 barrels in 30 minutes through 3-inch tubing last week.

Seven wells in the Van field of Van Zandt county, East Texas, under cooperative development by Pure Oil Co., for the account of itself and others, were making 7565 barrels, pinched production, at the end of the week. An eighth well in the field, good for upwards of 3000 barrels, initial production, was expected to bring the exploited flow above 8500 barrels daily.

Oklahoma-Kansas

DISCOVERIES in two tests south of the Earlsboro field in Seminole county, Okla., promise another substantial pool in that area, judging from the initial performances of the wells. One of them is rated as being capable of producing 4000 barrels on gas lift.

In Rice county, Kans., a well adjacent to the high gravity producer brought in last fall, found production in the Siliceous lime and adds interest to the possibilities of that area. The new producer swabs 25 barrels per hour.

Oklahoma City contributed a large volume of new production during the week, with wells of the usual 10,000-barrel and better caliber adding to the huge potential of the pool. The field was held to less than 70,000 barrels daily average over the week.

Wyoming, Montana

THE new international oil field lying on both sides of the boundary line between Alberta and Montana is the most active spot in the Rocky Mountain region. A third well was completed in the last week. No. 1 Thacker, Sec. 2-37n-4w, by the Cosmos Oil Co. at 2418 feet in the Sunburst. The well started flowing dry gas but suddenly turned to water and oil. It is estimated to have an open flow of 10,000,000 cubic feet of gas along with a flow of 5000 barrels of fluid of which 400 barrels is oil.

The other two wells in the field are producing from the Ellis contact below the Sunburst. Illinois Pipe Line Co. has completed a survey for a line from the field to railhead at Sweet Grass on the American side, a distance of 7 miles. The Maple Leaf Refining Co. has completed a survey from the field to its refinery at Coutts, the same distance. It is estimated that 30 new rigs will go up in the new field within the next 30 days.

The Editors' Viewpoint

National Petroleum News

Federal Trade Commission Takes Broader Viewpoint

THE Federal Trade Commission indicated a more enlightened attitude toward business recently when it dismissed a complaint against the Consolidated Cigar Corp. of New York. The corporation was charged with violation of Sec. 7 of the Clayton act in that it purchased the capital stock of a competing company.

The Clayton act was passed for the purpose of restraining companies from limiting competition through the purchase of substantial stock interests in competing companies and then using that interest to stifle free trade. It was adopted near the close of the "Trust busting era" to supplant the Sherman anti-trust act.

The Sherman act was designed to curb the formation of industrial giants which might attain such size that they would be able to stifle all competition and create monopolies against the public interest. The Clayton act was far more radical in that it sought to prevent any mergers of competitors, no matter how small the companies might be or how small a fraction of the total business they might be transacting.

For example two jobbing corporations engaged in interstate commerce might each be doing less than 10 per cent of the business in their territory. Yet the Clayton act, under a narrow interpretation, would prevent one from buying the capital stock of the other on the theory that the merger might tend to substantially lessen competition *between the two companies*, even though it would have no substantial effect on the total competition in their trade territory.

There are indications that Congress was not trying to prevent mergers of competitors as much as it was to pose as a protector of the people. For the act makes no mention of a purchase of the assets of a competing company. Congress only closed one avenue to combinations which did not assume proportions sufficient to come under the Sherman act.

The net effect of the act thus has been only to force business to go around the long way instead of cutting across-lots. Where consolidations of competitors have been desirable the consolidations have not been accomplished by the simple expedient of stock purchases but it has been necessary to purchase the physical properties and good will of the competitor.

Undoubtedly it was not the intention of the lawmakers to prevent a corporation from investing surplus funds in the common stock of other companies, even though they might be competitors. It was subsequent use of the stock to control the policies of the competitor that was sought to be banned.

In the cigar company case recently decided Commissioner McCulloch dissented from the action of the majority. In a memorandum stating his reasons he said:

"It seems clear to me that under proper interpretation of the statute it altogether forbids the acquisition of stock as an investment 'where the effect of such acquisition *may be* to substantially lessen competition between the corporation whose stock is so acquired and the corporation making the acquisition.'"

". . . . It does violence to the manifest intention of the lawmakers to say that Sec. 7 permits an acquisition of stock for investment, which may lessen competition or which tends to create a monopoly."

In the cigar company case the Consolidated bought all of the voting stock of the G. H. P. company. Subsequently the purchaser elected three members of the board of directors of the G. H. P. and placed two of the G. H. P. directors on the Consolidated's board.

In the past the Commission and the Department of Justice has been very watchful of similar transactions. When proposed, both agencies demanded complete showings that the companies were not in competition.

The more liberal interpretation of the statute by the Commission now apparently will free legitimate business from the necessity of buying assets instead of stock.—J.C.C.

Lack of Capital In Oil Failures

MUCH is heard about people quitting business and perhaps one might also consider the oil business. Bradstreet, the credit reporting house, has some definite opinions and facts as to why. Perhaps they might fit the oil business too.

Bradstreet says that, for 1928, 31.4 per cent of all business failures was due to incompetence and 35.8 per cent due to lack of capital. While we all probably believe we lack enough capital, and perhaps always will so believe, it is not the actual lack of it that causes the failures so much as misjudging, and permitting that misjudgment of our business and its opportunities to develop a lack of capital. So that this second important reason for failures may at least be given some consideration along with the first under the general heading of incompetence.

There undoubtedly must be oil men who fail in their particular venture through incompetence and others who fail through having misjudged their capital needs and gone ahead and developed a lack of capital.

At times it would seem that the oil men, in their planning for a utopia in the industry whereby every producer, refiner and marketer, regardless of his abilities, is guaranteed a profitable existence, might be overlooking human nature and be overlooking incompetency. No plan to include the incompetent can succeed. In fact it won't even get to first base.—W. C. P.

Statistical Committee To Meet

CLEVELAND, Feb. 10.—The statistical advisory committee of the American Petroleum Institute will meet at New York Feb. 21. Suggestions for the improvement of our industry's statistical information may be made to the committee by any person according to an announcement by Fred Van Couvern, secretary. Suggestions should be mailed to him at institute headquarters, 250 Park Ave., New York.

To Talk Code and Selling To Minnesota Jobbers

MINNEAPOLIS, Feb. 11.—How better merchandising brings more profits will be told oil men attending the annual convention of the Minnesota division of the Northwest Petroleum Association by R. M. Ward, supervisor of lubrication sales, Skelly Oil Co., Eldorado, Kan. The meeting convenes at the Radisson Hotel here on Feb. 19 and 20.

Elwin E. Hadlick, secretary of the association, will talk on the code of marketing ethics and tell why it is being accepted.

Automobile performance will be discussed by Col. T. A. Peck, chairman of the research committee of oils and lubricants, Shell Petroleum Corp., St. Louis.

Other speakers and their subjects include C. C. Wagner, Madison, S. D., who will talk on the relation of chemistry to the oil industry; and J. R. Atchison, advertising manager, Independent Oil & Gas Co., Tulsa, whose talk will be on sane thinking and sound business.

The convention will be opened by E. C. Laughlin, Lindsay-McMillan Co., Milwaukee, and president of the association.

A banquet will conclude the two-day meeting.

New York Oil Trades Banquet Planned

NEW YORK, Feb. 10.—The fourteenth annual banquet of the Oil Trades Association of New York, Inc., will be held Feb. 27 at the Roosevelt hotel in New York City. The affair, including an appropriate program, is under the direction of A. J. Squiers, Warren Lubricants Co., New York City.

At some future date, probably early in March, officers to serve during the next fiscal year will be elected. The following men have been selected by a nominating committee of five:

For president, Clifford T. Weihman, Smith-Weihman Co., Inc., New York City; vice president, A. A. Hoffman, American Oil & Supply Co., Newark, N. J.; secretary, Joseph C. Smith, also of the Smith Weihman Co., and treasurer, Phillip C. Meon, Borne Scrymser Co., of New York City.

These members have been nominated for the Board of Directors: Albert J. Squier, Warren Lubricants Co.; R. E. E. Hood, New York City; William L. Koburger, William L. Koburger, Inc., New York City; George Suraud, Chelsea Oil & Supply Co., New York City; William Stewart Williams, Asiatic Petroleum Corp., New York City; Edwin Stern, Louis Stern Sons, Inc., and C. Rodger Brown, Brown Edwards Co., both of New York City.

Firestone Plans Bulk Storage for 20 Stations at Boston

BOSTON, Feb. 6

FIRESTONE TIRE STORES, INC., subsidiary of the Firestone Tire & Rubber Co., Akron, O., has applied to the city of Cambridge for a permit to build a bulk storage plant for gasoline on the Broad canal, Cambridge.

This bulk station, the first the Firestone company has attempted in its program of building one-stop automobile service stations in the principal cities, is part of the company's program to spot one-stop service stations throughout metropolitan Boston, it is said.

The company has five stations in this territory now in which it is financially interested and its 1930 program calls for the building of 15 more.

The request for bulk station permits calls for the immediate erection of three 65,000-gallon above-ground tanks with the necessary handling equipment and other bulk station facilities. The Broad canal is navigable only by light draft craft so it will be necessary to barge the motor fuel in.

The Firestone plant site has been purchased by the retail subsidiary. It is near the Cambridge sub-station of the Standard Oil Co. of New York.

It became known at the meeting here of the Independent Oil Men's Association of New England that Firestone was negotiating with at least two gasoline supplying companies, one of which was a refining company. As far as could be learned a contract had not been signed with anyone.

The chief Firestone controlled service station at present in Boston is on Brookline avenue in the Fenway district. It lies on the borderline between the developing retail district of Boylston and nearby streets, and the residential suburb of Brookline. It is known as the Barrabee station, Barrabee having been Firestone dealer in Boston.

The station contains on its upper two floors the New England district offices of the parent company and warehouse facilities.

In the same neighborhood with the Barrabee station are two other one-stop stations which are under the control of the Miller Rubber Co., Akron, and Seiberling Tire & Rubber Co., Barberton, O.

Furnace Oil Bucket Trade Shunned as Unprofitable

BOSTON, Feb. 1.—The profit in furnace oil that requires bucketing to the consumers' tanks is so small that it is not worth while to go after, is the opinion of Jenney Mfg. Co. officers. This company sells furnace oils but it delivers only to installations with tanks of 1000 or more gallons' capacity. The company is interested primarily in gasoline distribution.

Trade Coupons Are Issued By Indiana Station

INDIANAPOLIS—Selling gasoline through coupons has cropped out in Indiana. The Rothchild Oil Co., which opened a station in Terre Haute in December, has sold coupons to various merchants in the city which are distributed with purchases. A coupon is good for 4 cents in gasoline at the Rothchild station.

The coupons are given indiscriminately in that the cooperating drug stores, grocery stores and other merchants may give as many tickets as desired with any size purchase. The Rothchild Oil Co. sold the coupons to the merchants for $4 a thousand.

The practice was brought to the attention of oil marketers through an editorial in the Indiana Petroleum Marketer, written by Max L. Wickersham secretary of the state association.

The coupons are said to be a violation of the Indiana law in that they are given the value of one mill in U. S. money. The Indiana law provides that the coupons shall have the same value in merchandise and in cash.

Selection and Application of Insulating Materials at Gasoline Plants

By T. S. Tulien*

(Presented before California Natural Gasoline Association)

IN MAKING a selection of the insulation to be used in a gasoline plant three things should be taken into consideration; namely, suitability, efficiency and application.

Under the heading "suitable", temperature, durability, and location must be considered. The life of the insulation will be very short if the temperature limit of the material selected is below the temperature of the equipment to be insulated. Likewise a high temperature insulation would not be economical on a low temperature surface. Insulation that will protect against heat losses from a steam line will not be suitable for protection against evaporation from a gasoline storage tank or as a fire proofing material.

The weight of the insulation may be a factor in one instance and in another the location of the equipment may be such that the insulation will meet with excessive wear from an outside source. Again it may be necessary, for some reason, to frequently remove the insulation in which case a material of high salvage value should be used.

Eighty-five per cent magnesia is probably the best known of all insulating materials. It is very economical insulation against heat losses in gasoline plants, where the temperatures encountered come well within the maximum limit of 550 to 600 F. at which temperature magnesia will begin to calcine. If properly manufactured it has sufficient strength and workability to allow application without waste. Eighty-five per cent magnesia, as the name implies is made from a mixture of eighty-five per cent carbonate of magnesia and fifteen per cent asbestos fiber, and it is very important that the proper kind of fiber and proper mixture is used. In order to give maximum service the fiber mixture should be such that, when breaking the insulation, it is necessary to tear it apart. The result of a poor mixture or improper fiber, is a material that breaks apart with a snap when pressure is applied or an attempt made to form it around a cylindrical surface. The breakage in the case of such a material is high.

Increase in Efficiency of Insulation as Pipe Size Increases.

Pipe size Inches	Thickness of Insulation Inches	Efficiency Per Cent
1	1½	73.21
2	1½	78.88
3	1½	81.34
4	1½	82.58
6	1½	83.89
8	1½	84.79
10	1½	85.12
12	1½	85.44
16	1½	85.75
Flat Surface	1½	86.25

Another insulating material suitable for the temperatures encountered, is one made up of laminations of asbestos felt composed of asbestos fiber and small particles of spongy cellular material. This type of insulation is especially designed to withstand wear and tear and will remain permanently in place without disintegration or lowered insulation value. Such insulation should be used in locations where the material will have to withstand abuse or where high salvage value is desired.

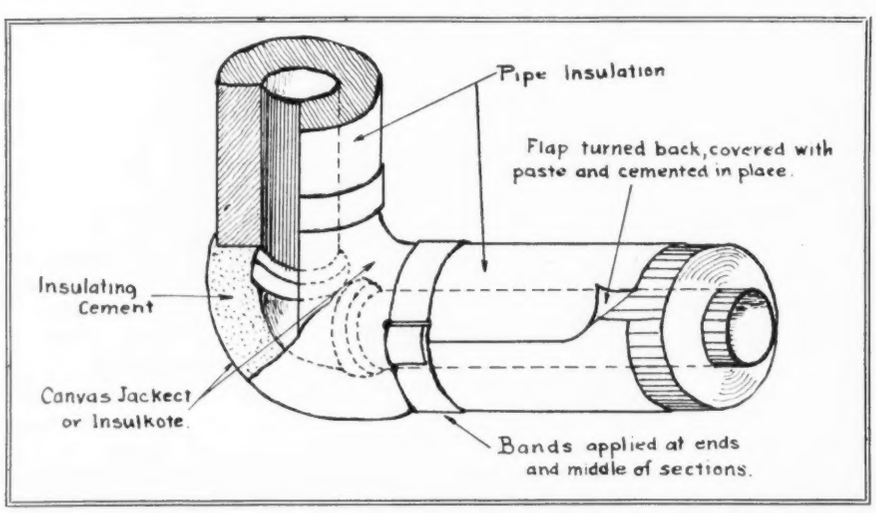
For insulation against evaporation losses a low temperature insulation should be used. There are several types suitable such as vegetable cork, rock cork or hair felt. Of these the last named has proved as economical and satisfactory as any.

Although there is not the same need for fire protection insulation in a gasoline plant that there is in a refinery, still there are times when such insulation would prove a cheap insurance. The suitability in this case depends not only on conductivity but also on the ability to withstand high temperatures without breaking down structurally. There are a number of good insulating materials on the market, but very few that have the combined qualities of low conductivity and ability to withstand high temperature. A coarse ground material made from mineral Celite has been found very suitable in that it possesses these qualities to a marked degree.

AFTER the "suitability" of a material has been determined its economical efficiency should be considered.

Here again 85 per cent magnesia meets the requirements as insulation against heat losses or for the control of temperature. While this type of material will return a certain per cent on the initial investment, or will give certain definite results as to temperature control it does not follow that doubling the thickness will make the results twice as good. The rate of transfer of heat from the metal surface of the equipment being high, and the rate of transfer through the insulation being low, it follows that the bulk of the saving is made by the first thickness of the insulation and

*Johns-Manville Sales Corp.


Pipe Insulation
Flap turned back, covered with paste and cemented in place.
Insulating Cement
Canvas Jacket or Insulkote.
Bands applied at ends and middle of sections.

Sketch showing method of applying pipe covering and insulating adjacent fitting

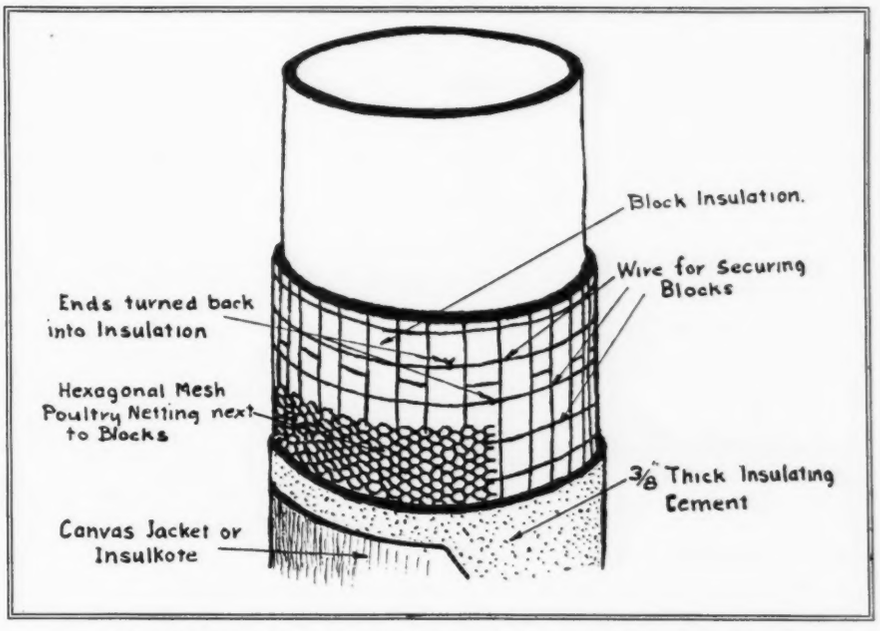
any additional thickness will make a very slight increase in efficiency. This slight increase may, however, make it a paying investment.

Take for instance the case of a surface insulated with a 1-inch thick material against a temperature of 200 degrees Fahr. If the temperature of the air is 50 degrees Fahr. the loss from the bare surface under still air conditions will be 3.15 million B.t.u. per square foot per year. The efficiency of 1 inch thick 85 per cent magnesia at this temperature difference is approximately 84 per cent. The loss from the same surface insulated, would therefore, be reduced to ½ million B.t.u. per square foot per year based on a fuel value of $.25 per million B.t.u. the saving would be $.66 per square foot per year.

This type of insulation 1-inch thick properly applied and weatherproofed costs approximately $.50 per square foot, so based on this saving of $.66 it would pay for itself in approximately eight months. Suppose now that the insulation be increased to a thickness of 2 inches. This would increase the efficiency to 91 per cent and the cost of the insulation applied to $.65 per square foot. Based on an efficiency of 91 per cent the heat loss would be reduced to .28 million B.t.u. per square foot per year and the savings would be practically $.72 or $.06 more than for the 1-inch insulation. In this case 2½ years would be required to pay for the extra cost of increasing the thickness. Expressed in per cent return on the investment the 1-inch insulation would show a 132 per cent return whereas the additional thickness would show a 40 per cent return.

On the other hand, the life of the equipment, or length of time the plant is to be used, determines to a large extent the economy of the additional thickness. Taking into consideration all of the existing conditions the most economical thickness can easily be computed. However, some manufacturers of insulation have worked out tables showing the proper thickness for various temperatures, all of the controlling factors having been taken into consideration, so by referring to these, a great deal of work can be eliminated.

These tables show the economical thickness of pipe covering for temperatures encountered in gasoline plants in Southern California to be approximately 1 inch thick, or, as this thickness is designated, standard thick; insulation for cylindrical surfaces under 250 degrees Fahr. to be 1½ inches thick and over 250 degrees Fahr. and under 500 degrees Fahr. to be 2 inches thick. The thicknesses shown for cylindrical surfaces include finishing cement and weatherproofing. Just as there is an economical maximum thickness, there is an economical minimum thickness. This minimum thickness is determined by the structural strength of the material rather than by any insulating value.


Block Insulation.
Wire for Securing Blocks
Ends turned back into Insulation
Hexagonal Mesh Poultry Netting next to Blocks
3/8" Thick Insulating Cement
Canvas Jacket or Insulkote

Method of applying insulation to flat or cylindrical surfaces

Magnesia, while it is an effiicient insulation against heat losses, would not be economical or suitable as a cold insulation, as for instance in the case of gasoline tank insulation. In a great many cases gasoline is stored in pressure tanks, but regardless of this, the temperature of the liquid may become such that the evaporation losses will be high when released from the tank to containers at atmospheric pressure. This is especially true on a hot summer day. If a large storage tank is used the structural strength of the tank is such that very little pressure, if any can be applied. In this case the losses due to breathing, and in some instances, wind drift, are large.

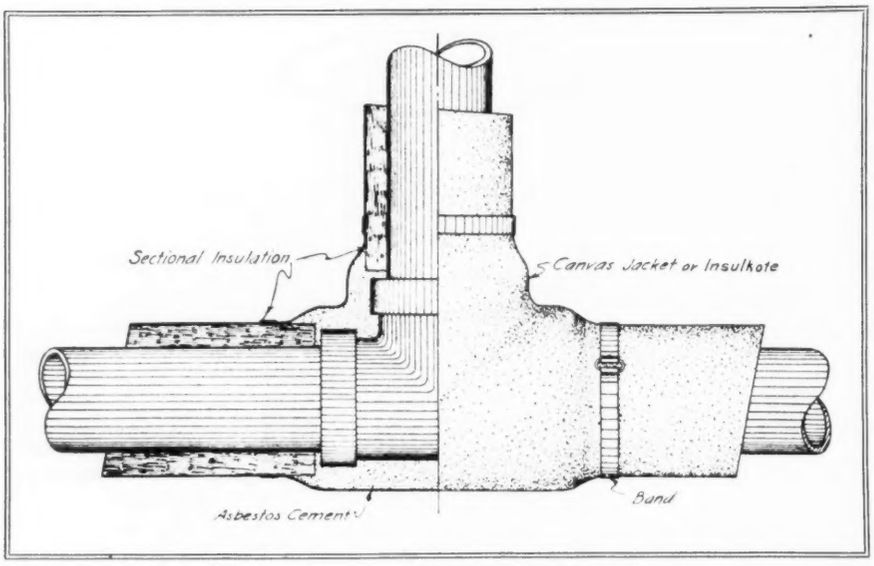
PROPER insulation has proved a very economical remedy. Records kept over a period of years show that by using a ¾-inch thick hair felt over the deck and eaves, with leaks sealed with a special fume proof cement the losses have been reduced as much as 85 per cent. Based on the saving the insulation has paid 100 per cent on the investment in a few months. This return on the initial cost of insulation depends of course, upon the size of tank and conditions before insulating. It might sometimes be economical to cover the entire tank but it is advisable to first refer the matter to the insulation manufacturer.

The most economical thickness of insulation for fire protection depends largely on the hazards and the probable duration of the fire. Nine hundred degrees Fahr. is usually taken as the critical temperature for steel supports. If the structure reaches a temperature greater than this temperature there is danger of failure. Test runs show that a mixture of 4 parts of Sil-O-Cel C3, which is a coarsely ground calcined diatomaceous earth, and one part of Portland cement by volume, made up in a plastic form and applied on the equipment to be fireproofed to a thickness of 2 inches will keep the temperature below 900 degrees Fahr. for a period of from four to five hours. In the majority of cases a fire which has not been extinguished in this time, is beyond control, and further protection would be useless.

We now come to the last point to be considered, namely application. Although the most suitable and efficient material may have been selected, the insulation can be a complete failure, as far as results are concerned, if it is not properly applied. Care should be taken that the insulation material fits up tight against the surface to be insulated. As few joints as possible should be used and these joints well sealed so as to prevent the heat from leaking out at that point.

Insulating cement is used for covering irregular surfaces such as fittings and as a finish on cylindrical surfaces that have been insulated with block insulation. This cement should be allowed to thoroughly dry before applying the finishing or weatherproofing coat. If the weatherproofing is applied before the cement is dry there is danger of the finish cement coat separating from the block insulation and spauling off.

As a rule it is better to apply insulation when the equipment is hot, as this will not only dry the cement quicker, but will also tend to eliminate any danger of the insulation cracking due to expansion of the metal. It is of prime importance



Method of applying insulation to screwed fitting

that the weatherproofing be applied so that there are no openings or leaks which will allow water to get into the insulation.

A wet material has a high conductivity and if the insulation is allowed to become wet because of cracks in the weatherproofing it is of little value. Since the application of insulation is of prime importance I believe it would be well to explain this more or less in detail.

I will outline first the method of insulating pipe lines and fittings. Pipe insulation is furnished in split sections, three feet long, made up in one layer of various thicknesses, or several layers depending upon the type of insulation desired. Temperatures encountered in gasoline plants are such that more than one layer is seldom used and I will therefore, limit the description of the application to a shingle thickness.

Insulation for sizes of pipe less than 10 inches is furnished by the manufacturer with a light canvas jacket pasted to the surface of the covering with a flap extending over the longitudinal joint so as to make a complete seal. There is also an end lap for sealing the joints between sections. This canvas jacket is peeled back even with the longitudinal joint of the covering, which is then placed around the pipe to be insulated.

By means of a large paint brush, cold water paste is applied to the underside of the flap and to the outer portion of the canvas jacket which this flap will cover. The flap is then drawn back tightly over the seam and rubbed down so as to make it secure. The end flap on this section is then pulled back even with the covering and the next section applied in the same way, being sure to force it up tight against the preceding section so as not to have an open joint. The end flap is then pasted down over the joint in the same manner as the lateral flap.

Two lacquered bands are furnished with each section of covering. After the covering is in place one of these bands is fastened securely around the covering at the end joint, and the other midway between the ends of the section.

Eighty-five per cent magnesite covering, for sizes larger than 10 inch pipe, is furnished in block form, 36 inches long, without the canvas jacket. To apply covering of this size a small flexible rope should be placed around the pipe with a light coil spring inserted between the two ends. Each segment is then placed on the pipe under the rope, the tension of the coil spring tending to hold these segments in place until the entire circumference has been covered. The covering is then fastened securely to the pipe by means of black annealed wire, of 14 or 16 gauge, with the ends twisted up tight with a pair of pliers and turned down into the insulation so as to leave no sharp points protruding.

THESE wires should be placed on approximately 8 to 10 inch centers. As the wire is being drawn up tight, it should be hammered into the surface of the insulation with a wooden mallet so as to leave it flush. A canvas jacket is then cemented to the surface of the insulation with cold water paste. A good method of applying the paste to the jacket, is to mix a fairly thick mixture in a bucket, and dip the entire section of canvas in this, so as to thoroughly saturate it. The excess paste can be removed from the canvas by taking one corner of it in one hand and drawing it through the fingers of the other hand. Lateral and end laps should not be less than three inches.

Approximately two pounds of cold water paste is required for applying a hundred lineal feet of covering furnished with the jacket cemented to it. Where the entire jacket must be pasted on the insulation, approximately five pounds of cold water paste is required for 100 square feet of surface area.

Where fittings occur in the line, the covering should be run up to this point and the fitting then covered with a plastic insulating cement to within approximately ¼ inch of the surface of the adjacent pipe covering. After this first coat of cement has dried the crack should be filled with cement and a second coat applied bringing it flush with the surface of the covering. When this second coat is dry a canvas jacket is pasted over it in the same way as previously described for the pipe covering.

If the covering is to be painted, it should be first primed with a cold water paint, mixed to a thickness at which it will just run freely. Approximately five pounds of the dry powder are required for a mixture to paint 100 square feet of surface. The insulation should be then painted with at least two coats of a good grade of lead and oil paint. It is very important that the line be primed before painting with the lead and oil paint, otherwise the oil in the paint will penetrate into the insulation and decrease, or even entirely destroy, its efficiency.

If the insulated lines are on the outside, exposed to the weather, the insulation should be protected by a waterproof covering. Probably the most satisfactory and economic material to use for this purpose is an asbestos roofing felt. Asbestos felt is composed of asbestos fiber and asphalt and will not dry out and rot like rag felt or canvas.

The felts are cut from the roll into strips wide enough to go around the insulation and make a good lap. These strips are then fastened over the surface of the insulation so that the lap is on the side of the covering with the edge down to properly drain. Sixteen gauge galvanized iron wire placed on approximately six to eight inch centers is used to secure the jacket to the covering. This jacket if properly applied, makes a neat appearing job, and is more effiicient than paint in that the latter may crack and allow water to get into the insulation.

Insulation for large cylindrical surfaces or flat surfaces is furnished in block form 6 inches wide by 36 inches long, of thickness specified. To apply this insulation a light flexible rope is placed around the circumference of the surface to be covered, with a light coil spring inserted between the ends the same as described in the case of large pipe covering. This spring should be of sufficient length to allow for the increased diameter resulting from the applied insulation. This rope, with the coil spring, affords a simple means of holding the block

ADVERTISING PAGES REMOVED

insulation in place until it can be permanently fastened.

Starting at the bottom edge of the surface to be insulated, the blocks should be applied with the 36 inch length running parallel with the axis of the cylinder. Each alternate block should be broken in two, making an 18-inch length, so as to stagger the joint. After this first course has been placed around the entire circumference the blocks are fastened in place by means of black annealed wire of 14 or 16 gauge.

The wire should be drawn tight by one man, with a second man hammering it in flush with the surface of the insulation by means of a wooden mallet. The ends should then be twisted up tight, cut, and turned into the surface of the insulation so as not to leave any sharp protruding points.

When the entire surface has been so covered, a 1-inch hexagonal mesh poultry netting should be placed over the entire area of the insulation, with all joints laced together with 16 gauge black annealed wire. In case there is any bulging in the poultry netting it should be held close to the insulation by means of hair pin staples. These can be made from the same 16 gauge annealed wire, and should be of a length which will not penetrate the entire thickness of the insulating block.

Next plastic insulating cement is applied over the entire surface to a thickness of approximately ⅜ inch and finished to a smooth true surface. Approximately 1½ pounds of the dry cement is required per square foot of the surface to be covered. After the cement has been allowed to thoroughly dry, all cracks should be buttered up with this same insulating cement.

The insulation is now ready for applying a weatherproofing material. In case a pasted on canvas jacket is used it should be applied and painted in the same way as previously described. If a sewed on canvas jacket is desired, a 72-inch wide 8-ounce canvas usually is used. The canvas should be placed around the surface to be covered with its length running around the circumference, the two ends doubled under, and after it has been drawn tight, sewed with a No. 6 Irish flax thread. The lateral seams should be sewed in the same manner. As a rule it is easier to stretch the canvas tight, if application is started at the top of the cylinder or tower being covered, and working down from this point. The jacket should then be painted the same as in the case of the pasted on jacket.

There is always danger of leaks due to cracks in a painted surface and we have found that plastic materials, made up of asbestos fiber and asphaltic compounds, such as Insulkote for instance, make an exceedingly good weatherproofing jacket, and one which is also more or less resistant to fire. This material is applied in plastic form to thickness of approximately ⅛ inch by means of a trowel. It can be worked to a very smooth finish. Approximately one pound is required per square foot area to be covered.

For fireproofing columns or steel frames of any kind, the simplest method is to build forms for the desired thickness, the same as for concrete. A mixture is then formed by using 32 pounds of Sil-O-Cel C3 with one bag of Portland Cement. This is then poured into the forms, well tamped, and allowed to set. After it is dry the surface can be primed and painted if so desired.

Formula Devised for Figuring Return Gas to Leases

By John Power

N. P. N. STAFF WRITER

A FORMULA for calculating the equitable distribution of return gas from a natural gasoline plant has been worked out by the engineers for one of the larger oil companies of the Mid-Continent. Its function is to determine quickly the definite volume of return to which each lease supplying whole gas is entitled. Figures supplied by chart readings taken at any desired time may be substituted for the symbols of the formula.

The following symbols are used:

R equals the residue due each lease supplying gas to the plant.

G equals the total whole gas received at the plant from all leases.

V equals the volume of whole gas supplied by each individual lease.

P equals the amount used by the plant for its own purposes.

W equals the amount wasted through the safety pop, or other means.

E equals the extraction volume according to the curve of the Natural Gasoline Association.

Then $$R = G - \frac{(P + W) \times (V - E)}{G}$$

In other words, the total gas delivered to the plant minus the amount used and wasted by the plant, when divided by the total gas supplied is equal to the *percentage* of the total deliveries which should be returned.

When this figure is multiplied by the volume supplied by each lease minus the extraction volume as determined for the quality gas supplied by that lease, the fair share of the total residue to which the lease in question is entitled is the result.

The principal need for such a formula lies in the fact that the gasoline plant has no facilities for storing gas. The lease requirements and the supply from the lease to the plant vary so throughout the day, and generally in inverse ratio to each other that most gasoline plants have to purchase additional dry gas to supply the need. And at the same time, the plants have to waste some gas because the supply increases very frequently much faster than it can be processed.

For example, a lease on which the wells are operated on the air or gas lift is tied into the gas supply system of a gasoline plant. When there are wells on the lease to be "kicked off" its use of residue is very great, but it is supplying very little. When the conditions change and the wells are back on production, their output of gas is greatly increased. The demand for residue slacks up, and it backs up on the plant.

The need for such a formula, say those who worked it out, would be obviated if the leases could take the residue at the same rate and at the same time as they supply whole gas. The fact that they cannot forces the waste of the surplus residue for a time. And this in turn forces the plant to purchase dry gas when the demand is heavy, a purchase for which plant owners feel they should be reimbursed.

A type problem, with figures taken from actual chart readings, is herewith presented. The figures are in thousands of cubic feet.

G equals 165,479
V equals 68,381
P equals 23,347
W equals 10,527
E equals 30 per cent.

This leaves R the only unknown. Substituting the figures for the symbols, and solving for R, the equation becomes the following:

$$R = 165{,}479 - \frac{(23{,}347 + 10{,}527) \times (67{,}381 - 20{,}514.3)}{165{,}479}$$

Solving first the problems presented inside the parentheses, R becomes equal to $$\frac{165{,}479 - 33{,}874}{165{,}479} \times 47{,}866.7$$ which simplifies to $$\frac{131{,}605}{165{,}479} \times 47{,}866.7$$. Solving this latter for R, the answer is found to be 38,054,026. As the figures used were given in thousands of cubic feet, the amount of residue gas to which the lease in question is entitled is 38,054,026 cubic feet.

New Earlsboro Pool Stands Out in Mid-Continent Development

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Feb. 8

ANOTHER Seminole district pool has made its formal bow and the development is on. Two wells, a half mile apart, have brought into being what shall be known, temporarily at least, as the South Earlsboro pool. The Earlsboro pool is getting as many suburbs as a metropolitan city.

These wells were discussed in these columns last week, their status at that time being merely that they had entered the Wilcox sand and had more than 2000 feet of oil each standing in the hole. They lie in advance of production, as shown by the accompanying map, and are situated far enough from dry holes to afford room for a pool of consequence.

The more important of the two is the Amerada Petroleum Corp. and others' well in the SE NE NE of 22-9.5, Seminole county. It had Wilcox at 4188 to 4207 feet, the latter being the present total depth after drilling five feet deeper following its initial performance of 210 barrels in three hours on the swab. After deepening it made 720 barrels in 12 hours.

Field men of the Amerada pronounce it one of the best wells that organization has ever drilled in the Seminole district and say that after shot it should make upward of 4000 barrels on gas lift. It will provoke some new drilling, four new locations having been made up to this morning and active work started on all of them. In accordance with the proration rules governing the area, the well will take a 16-day shut down and will be prorated to 70 per cent of its potential.

There has been some discussion as to classification of this, some contending that it should be treated as a new pool and prorated to 25 per cent of capacity, as the present corporation commission order provides. It is possible that it may later be reclassified and given the deeper cut in production.

The other well of the new area is the Magnolia Petroleum Co.'s No. 1 in the NE NW of 23-9-5, a half mile east of the Amerada et al well. The Magnolia test had Wilcox at 4216 to 4229 feet. Its best swabbing performance was 460 barrels in eight hours. Swabbing failed to reduce the oil column.

This well was drilled under the type of cooperative agreement that has been used in so many instances in the district. In consideration of partial reimbursement of drilling costs by neighbor operators the Magnolia agreed to produce only 100 barrels daily until the first offset, which will be that of the Gypsy Oil Co., is completed.

Under the proration rules a further penalty of 16 days complete shut-in will be imposed on the Magnolia well and that of the Gypsy also, after which both will go under the percentage proration in effect in the pool at that time.

The Oklahoma City field continues to produce conservatively, when its high potentialities are considered. There were, at the close of the week, 91 wells completed. A number of them are not permitted to produce, under proration rules of the field. The output for seven days ended the morning of Feb. 7 totaled 446,377 barrels, or an average of 63,768 barrels per day.

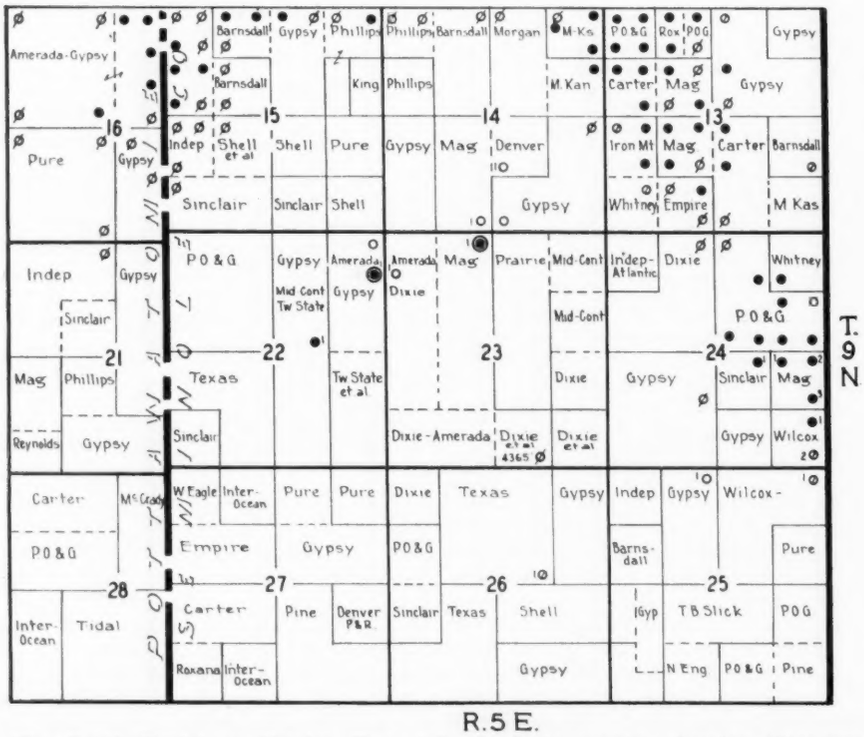
Completions during the week included several wells of the high initial production common in this field. They were as follows:

Indian Territory Illuminating Oil Co. & Foster Petroleum Co.'s No. 8 Trosper, NW NW SW 13-11-3, top detrital sand 6165 feet; top pay sand 6320, total depth 6360 feet; initial production, 3594 barrels in 15¾ hours.

Indian Territory & Foster No. 2 Wilkie Anderson, top detrital sand 6196 feet; pay sand 6460-90; initial production 8390 barrels.

Indian Territory & Foster No. 5 A-Bodine, NE NE SE 24-11-3, top Siliceous lime 6067; total depth 6525; initial production 13,520 barrels in 15 hours. The production was cut four per cent water and b. s.

Indian Territory & Foster No. 10 Trosper, NW SE of 13-11-3, pay sand 6390-6416; initial production 16,136 barrels. This well, near the north



The South Earlsboro district, Twp. 9-5, Seminole county, showing discovery wells of Amerada Petroleum Corp. and Magnolia Petroleum Co.

end of the field, proves no advanced territory but fills in the pattern between widely scattered wells.

Indian Territory & Foster No. 1 Farley Fuzzell, top Siliceous lime 6005; total depth 6503; initial production 78 barrels in three minutes. Shut in until traps could be installed.

Indian Territory & Foster No. 3. A. Bodine NW NE SE 24-11-3; top Siliceous 6078; total depth 6520; initial production, 7102 barrels in 20 hours.

Indian Territory & Foster No. 4 Button, NW SW SW 19-11-2; top Siliceous 6058; total depth 6511; initial production 4573 barrels in 15 hours.

Indian Territory & Foster No. 9 Trosper, NW SW SW 13-11-3; sand 6305-6335; initial production 1865 barrels in 14 hours.

Indian Territory & Foster No. 2 A. Brokaw, NE corner 13-11-3; top Siliceous 6077; total depth 6494; production 4599 barrels in 11 hours and 35 minutes; 27 per cent b. s. and one per cent water. This is the farthest northeast producer in the field but is less than offset distance east of a Slick well, which was not a standard location.

Indian Territory & Foster No. 3 A. Bodine, NW NE SE 24-11-3; top Siliceous 6078; total depth 6520; initial production 7102 barrels in 20 hours. This well made about six million feet of gas with the oil.

Indian Territory & Foster No. 9 Trosper, NW SW SW 13-11-3; sand 6305-35; initial production 1856 barrels in 14 hours.

There were no outstanding developments in the form of extensions of territory. Completions will come rapidly from now on. Of the 209 drilling operations in the field, 71 are below 6000 feet; 35 are between 5000 and 6000; 32 are drilling between 4000 and 5000 feet; 25 are from 2000 to 4000 feet and 18 are less than 2000 feet. There are 28 rigs and locations. By June 1 the big development rush will be over in the pool, unless notable extensions of territory are found.

In Kansas some new interest has been stirred up in western Rice county, southwest of Lyons, by the Producers & Refiners Corp. Its No. 1, SE SE NW of 21-20S-10W, found a formation said by some to be the Siliceous lime, at 3330 feet and at one foot in the well was swabbing 43.7 gravity oil. About 150 barrels were produced between midnight and 9 o'clock a. m. Feb. 7. The swab failed to lower fluid to below 1400 feet from the bottom of the hole. It is estimated to be good for at least 25 barrels per hour on the swab.

This well is a half mile west of the well drilled in last October by Steinbuschel and Hilligoss, of Wichita, and later sold to T. B. Slick and others.

This well, No. 1 Schurr, is in the NE NE SW of 21-20S-10W. Its production was found in a stray sand at 3277-84 feet and it pumped initially 167 barrels of 51.2 gravity oil. It is now pumping about 35 barrels oil and 17 barrels water.

Diagonally offsetting the Schurr discovery to the northeast, the Independent Oil & Gas Co. in the SW SW NE of Sec. 21 failed, like the Producers & Refiners, to find the pay from which the Schurr is producing. It was shut down at 3318 feet, awaiting the outcome of the Producers & Refiners test. It will be carried to the lower pay.

In Woods county, Okla., the wildcat of the Sinclair Oil & Gas Co., reported last week as having 15 million feet of gas at 6745 feet, is hung up with a fishing job. The gas blew the tools up in the hole and formed a bridge and a heavy dose of salt water drowned the gas. The location is in the center of the east half NE SW of 33-27-16W.

An interesting wildcat in Grant county was finished by the Gypsy Oil Co. the past week as a failure in the Wilcox sand. It is in the NW SE SE SE of 27-28-7W, near Wakita and due north of Enid. Wilcox was found at 5647 and at two feet in the hole filled 4000 feet with water.

Notes on the Week

Deliveries of the Prairie Pipe Line Co. to customers during January totaled 6,257,643.92 barrels, an average of 201,859 barrels. In December the daily average deliveries were 206,797 barrels.

The most active small area in the Texas Panhandle is the Cheatum granite wash pool in Hutchinson county, four miles west of Borger. Eleven new active locations have been made. The pool was discovered in May, 1929, by the Marland Oil Co.'s C-1 Johnson, which has produced about 350,000 barrels and still makes some 1300 barrels per day. Short term leases in the vicinity of the discovery is causing the drilling campaign.

James K. Crawford

James K. Crawford Dies at Tulsa

TULSA, Feb. 8.—James Kennedy Crawford, 59 years old, died Feb. 6 in his home in Tulsa. A heart attack was the immediate cause of his death, although he had been in ill health for several months and for the past few weeks only relatives and intimate friends had been permitted to see him.

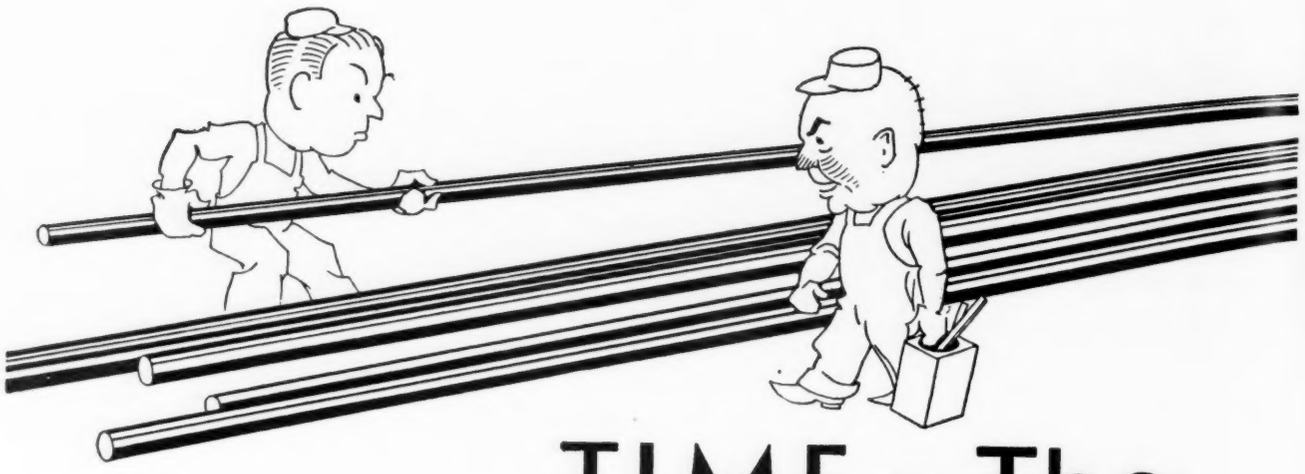
Mr. Crawford had been an important figure in the oil development in the Mid-Continent for many years. He came to Oklahoma in 1911 and soon thereafter became manager of the Sperry Oil & Gas Co. and other producing units. With his brothers John M. and D. B., of the Parkersburg Rig & Reel Co., he formed the Oklahoma Producing & Refining Corp. which in 1920 was sold to the Pure Oil Co. and constituted the nucleus of that company's widespread holdings in the Mid-Continent. At the time of his death Mr. Crawford was president of the Quartet Oil Co.

One of a family of five boys and two girls, Mr. Crawford was born in County Derry, Ireland. He came to America when he was 14 years old, the brothers and sisters moving to this country one at a time as those who came first accumulated money enough to pay the passage of the others. He was first employed as a blacksmith's assistant in the oil fields near Bradford, Pa. and worked successively as tool dresser, driller and contractor in the fields of Pennsylvania, West Virginia, Ohio and Illinois. He elected to follow the business of producing oil while his brothers John M. and D. B. and another brother, now deceased, went into the supply business in shop work at first, and later as the Parkersburg Rig & Reel Co.

He was highly successful in the oil business and has been one of Tulsa's outstanding citizens. He was also widely known in the world of sport, having for several years owned the Western League baseball club in Tulsa.

Mr. Crawford is survived by his widow and one son, James Crawford, Jr.; six daughters, Misses Margaret, Evelyn, Jeanette, Helen, Kathleen and Ann; by three brothers, John M. and D. B., Parkersburg, W. Va. and Joseph, Miles City, Mont. and by two sisters, Mrs. Margaret Wallace, Tulsa and Mrs. Mary Eaton, Williamson, N. Y.

Funeral services were held Feb. 10 at the First Presbyterian Church and burial was in Rose Hill cemetery, Tulsa.



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READING
CHARCOAL IRON BOILER TUBES

S. H. (SID) KEOUGHAN, former president of the Continental Oil Co., prior to that company's merger with the Marland Oil Co., has opened offices in the Continental building in Denver and will manage a producing syndicate which he has formed in conjunction with New York capitalists. First activity will be in Wyoming and Texas, it is reported in Denver.

* * *

Died: In Woodsfield, O., G. D. Cree, 80 years old. He was a pioneer oil producer. Surviving are sons J. W. Cree, Tulsa; George B. Cree, Pampa, Tex.; O. R. Cree, Wichita and five daughters.

* * *

Merger of the Graham Brothers Drilling Co. and Graham Brothers leaseholds into the Graham Oil Co. has been effected in Wichita. J. F. Graham is president; L. M. and W. T. Graham and L. M. Bradford are other directors.

* * *

The Arkansas Fuel Oil Co. has opened offices in Wichita with F. J. Miller as district geologist; A. D. Mading, land man and G. D. Hunter, scout.

* * *

N. W. Bass, formerly of the United States Geological Survey, has been appointed division geologist for the Pure Oil Co. at Wichita, Kans. Mr. Bass has contributed liberally to the published geological information on Kansas. He is the author of a late report on Cowley county, published by the Kansas survey.

* * *

Fridolf Swenson, Mid-Continent Petroleum Corp. scout, has been transferred from Midland, Tex., to Fort Worth. Myrl Mannschreck, of Tulsa, has gone to Midland as Mr. Swenson's successor.

* * *

J. W. **Elder, general superintendent** of the Phenix Oil Co., Ltd., operating in Roumania, is making a study of producing methods in principal fields of the United States. California districts, the Oklahoma City and Seminole areas, were included in his itinerary.

* * *

T. B. Slick, oil producer, C. F. Urschel, vice-president of the T. B. Slick Oil Co. and Louis Campbell, manager of the land department of the Magnolia Petroleum Co., Oklahoma division, recently completed a hunting trip in southwestern Texas and northern Mexico.

* * *

Marketing headquarters of the Continental Oil Co., left in Denver when the merger with the Marland Oil Co. took place last year, have been moved to Ponca City. Denver will continue to be headquarters for E. T. Wilson, chairman of the board; W. H. Ferguson, executive vice-president; R. D. Hawley, general attorney; R. S. Shannon, general superintendent of production in the Rocky Mountain region; G. T. Bradley, tax agent and H. J. Packard, assistant chief geologist. A large number of sales executives will continue to occupy Denver offices, including J. A. Lentz, manager of the division; W. B. Elliott, C. R. Barton, H. J. Katzung, H. T. Rapp and R. O. McDonald, assistants.

* * *

Merger of two newspapers, weekly, in Sand Springs, Okla., brought L. M. Ladet back into that business as publisher. Mr. Ladet several years ago was oil editor of a Tulsa newspaper, left that place to advise Eastern banking houses on the oil business, operated as a wildcatter and now goes back to his first love.

* * *

New officers of the Petroleum Motor Transport Association, whose membership includes most of the principal oil companies in Oklahoma, are S. C. Phillips, Sinclair Oil & Gas Co., president; C. H. McBurney, Transcontinental Oil Co., first vice-president; C. J. Martin, Phillips Petroleum Co., second vice-president; Ernest L. Bell, Shaffer Oil & Refining Co., secretary-treasurer. Directors are A. L. McMillan, Indian Territory Illuminating Oil Co.; G. W. Edmunds, Amerada Petroleum Corp.; Charles Meyers, Gypsy Oil Co.

* * *

W. H. Horster, manager of the Exchange National Bank building in Tulsa, well known to all the oil men who occupy space in that building, has gone to Germany to visit old home scenes. He will further the interests of the International Petroleum Exposition while there by inviting students of universities to attend the 1930 show.

* * *

Phillips Petroleum Co. has enlisted the services of George Sawallesh as assistant advertising manager. He resigned as assistant to the president of the Central Airlines, at Wichita. Howard Harrington, who heads all the publicity and advertising work for the Phillips, came to that company last year from aviation, having been associated with the Travel Air company at Wichita.

* * *

W. H. Price, who for years has represented the Black, Sivalls & Bryson firm of tank manufacturers in the Rocky Mountain territory, with headquarters in Casper, has been transferred to Oklahoma City. He is succeeded by W. H. Connor, who has also had considerable experience in the Rocky Mountain territory and Alberta.

* * *

With the consolidation of Wyoming and Montana production offices of the Texas Production Co. in Billings, R. B. Leggett, who supervised Wyoming operations, has been transferred to San Antonio.

* * *

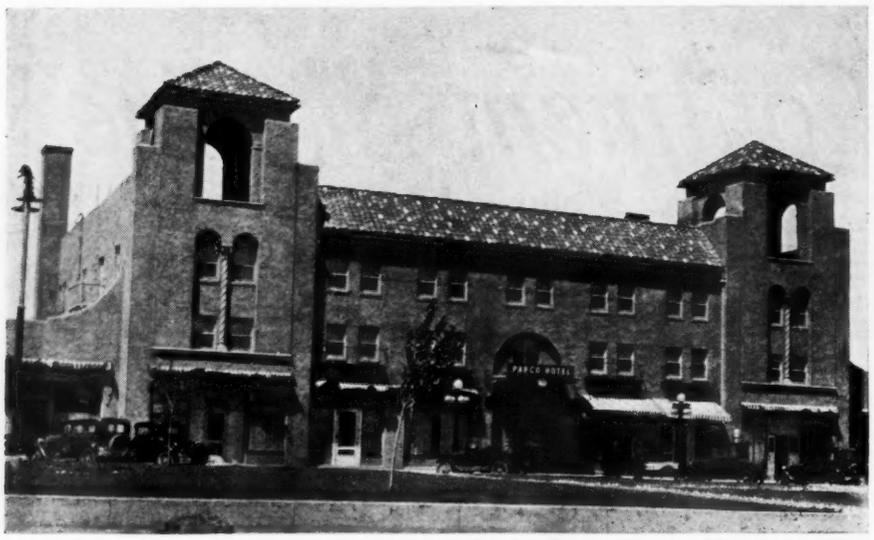
According to news reports from Washington, P. J. Hurley, secretary of war, is troubled over the necking, or petting, situation on military roads near the national capital. He wants Congress to legislate on the subject, giving local park police authority to patrol government roads as far as five miles from the District of Columbia boundaries, busting up romance wherever found.

* * *

Died: Frank Williams, 39 years old, petroleum jobber, of Forgan, Okla. He operated several distributing stations in northwest Oklahoma. His wife and two daughters survive him.

* * *

Frank Buttram, oil man and geologist, has made the plunge into democratic political waters. He has been announced as a candidate for the nomination for governor, subject to the primaries this year. Items in his platform: Economy in government; highway construction at a more rapid rate; revision of tax structure; advancement of education.



Not that the tourist season is yet here nor that we would encourage anyone to start driving through the Rocky Mountain country for a while, but to assist in vacation planning we present this picture of an oil company-owned hotel. It is in Parco, Wyo., which is the Wyoming home of the Producers & Refiners Corp. and the Prairie Oil & Gas Co. of Wyoming.

The hotel is a few miles east of Rawlins, which is on the Lincoln Highway. Tourists have begun to discover that the Parco Hotel is the best stopping place between Cheyenne and Salt Lake City. And no one who stops there fails to express amazement that such a splendid hostelry should be located in a town which is exclusively a company affair.

Richard S. (Uncle Dick) Gray, of the Prairie Oil & Gas Co. land department, Tulsa, has been given service button commemorating his 20 years with the company. A son, Frank S., outranks his father by five years.

* * *

John E. Dickson has opened offices in Oklahoma City and will engage in business as an individual operator. He was vice-president and general manager of the Homaokla Oil Co. prior to its recent acquisition by the Sunray Oil Corp.

* * *

Howard S. Bryant heads the geological department of the Skelly Oil Co. in Kansas. He was, until Feb. 1, assistant to Chief Geologist Earl A. Trager, in Tulsa.

* * *

C. D. Watson, chief engineer of the Carter Oil Co., Tulsa, has left on a trip which will require three months or more, during which time he will visit foreign properties of the Standard Oil Co. of New Jersey. His first stop will be fields of the Dutch East Indies. Carl Armstrong, general superintendent of the Dutch East Indies Co., New Jersey company subsidiary, was in this country and made the return trip with Mr. Watson. During the absence of the latter F. W. Robson, chief production engineer of the Carter in the Seminole district, is pinch hitting in the Tulsa offices.

* * *

Resignation of W. P. McGinnis, of the legal department of the Tidal Oil Co., to become assistant to the chief counsel of the Indian Territory Illuminating Oil Co., has been announced. Mr. McGinnis was with the Tidal eight years.

* * *

Married: Mrs. LaVerne Donahue DeNoya and George R. Marland, foster son of E. W. Marland and one time vice-president of the Marland Oil Co. They will live in Ponca City.

* * *

Harry J. Kennedy, who since the merger of the Marland and Continental companies, has been manager of the New York sales division, is now general sales manager for the Continental. He succeeded L. R. Milne, who became assistant to Vice-president E. S. Karstedt. The latter heads the sales department of the company.

* * *

Oil men have been elected as presidents of two of Tulsa's country clubs. The Indian Hills club is headed by Allen Whiteside, of the Sinclair Oil & Refining Co. and the Oakhurst club has as president Miles W. Bottomfield, vice-president of the Transcontinental Oil Co.

* * *

Political recognition has come to the wife of one of Tulsa's oil operators. Mrs. John G. Catlett was elected last week vice-chairman of the Democratic state central committee.

* * *

Loren J. Berry, formerly assistant general auditor of the Mid-Continent Petroleum Corp.'s northern division, Waterloo, Ia., has been transferred to Tulsa as assistant to J. T. McDonnell, assistant treasurer for marketing, according to announcement by R. W. McDowell, general sales manager. Mr. Berry is succeeded in Waterloo by W. C. Weeks, who moves from the company's division sales offices in St. Louis.

* * *

Recent marriages in the Mid-Continent Petroleum Corp. marketing division: Douglas C. Wixson, manager of station operations, Tulsa and Miss Evelyn McElhinney, Waterloo, Ia.; L. V. Surtees, northern division manager, Waterloo and Miss Margery Caroline Johnston, Corydon, Ia.; C. J. Ireland, distributor salesman, Waterloo and Miss Kathryn Farrell, Pueblo, Colo.

* * *

Born: To Mr. and Mrs. F. J. Keleher, a boy. Mr. Keleher is general auditor of the Dixie Oil Co., Tulsa.

* * *

George Hayden is now night superintendent for Champlin Refining Co., Enid. He has been with that company for several years.

* * *

H. O. Harder is now district production engineer for the Indian Territory Illuminating Oil Co. at Seminole, succeeding H. B. Thomson, resigned. Mr. Harder was transferred from the Oklahoma City district.

* * *

Division of the Oklahoma City field into two operating districts brought reassignment of duties to Indian Territory Illuminating Oil Co. men. W. P. Sutton is general superintendent of the district. C. O. Deverse has been made superintendent of the south Oklahoma City district and J. J. Lawry has the north district.

* * *

Ten Years Ago

(From National Petroleum News, Feb. 11, 1920)

Pennsylvania crude oil advanced 25 cents to $5.50.

Indian Refining Co. buys Central Refining Co., Lawrenceville, Ill.

American Petroleum Institute directors plan to speed tank car movement.

Competition for Ranger crude keen, with little "free" oil left.

Seek Gas for Montana Line

CASPER, Feb. 6.—Hope Engineering Co. and the Moody-Seagraves interests are seeking a gas supply for a pipe line from northern Wyoming to Butte, Anaconda and Helena, Mont. A short time contract has been signed with the Anaconda Copper Co. to supply it with gas for its smelters. The contract is subject to extension if an adequate supply of gas is assured. The proposed line would be more than 300 miles long and cost about $12,000,000.

TULSA, Feb. 6.—Harold S. Thomas, paleontologist for the Tidal Oil Co., is leaving that company shortly to become chief geologist for the T. B. Slick Oil Co., with offices at Oklahoma City. Mr. Thomas has been with the Tidal for the past three and one-half years.

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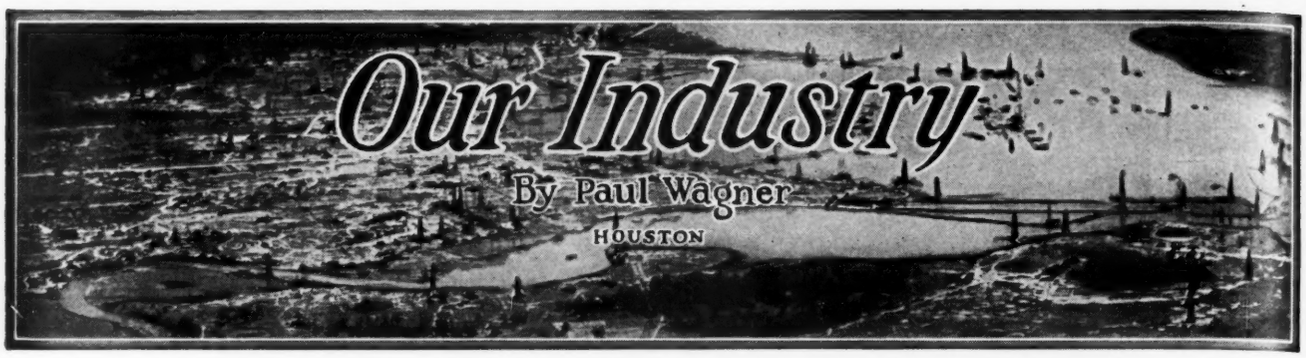


NOW geologists are taking to diving suits in their explorations for petroleum. Witness the example set in the Rincon area of Ventura county, California, preparatory to the development of a state tideland permit. The situation is related by Leo S. Fox of the General Petroleum Corp., Los Angeles, subsidiary of the Standard Oil Co., of New York, writing in the January Bulletin of the American Association of Petroleum Geologists.

In projecting the surface axis of the Rincon oil field the preliminary work of taking soundings for the construction of a pier was begun. Soundings on the top of the sand in the embayment were of no value, as the piles had to be driven into solid formation. It was necessary, therefore, to probe through the sand until solid formation was encountered.

The sand covering having been found very thin throughout the marine area, and in some places the floor of the embayment having no surface covering at all, an idea was born in the geological department. An investigation was begun in the hope of being able to trace reef beds and, if possible, locate accurately the anticlinal axis assumed to be present.

Formation samples brought up by the diver showed interstratified shales, sandy shales and fine sands. The outcrops could be broken off in slabs, exposing perfect bedding planes. The idea was conceived that the recording of altitudes throughout a considerable area would give a comprehensive picture of under-water structural conditions.

Submarine prospecting with a Brunton compass under water was employed in the immediate vicinity of lines run out from shore at chosen intervals. Lines were established normal to the strike projected from shore. Base lines were measured on the shore and, by means of transit intersections, recorded observations under water were tied to land control.

Prospecting was done from a 65-foot tugboat especially equipped for diving work. A spar would be located at a point on line, at which an observation was desired, the spar being flagged in from the ends of the base line on shore. After anchoring the boat into position adjacent to it the diver would submerge to look for an outcrop. If found, the problem consisted merely of breaking off a few slabs of formation and taking a reading. In some cases, however, sand would have to be cleared away to find an exposure. After completing one observation, the boat crew would slack up on the two stern anchors and move 100 to 200 feet further out for another probing operation. Mr. Fox's appraisal of the work is that it was found extremely gratifying, making a fresh step in scientific exploration.

* * *

Prorating of crude oil production in the Darst Creek field of the Luling fault zone is conducted by H. H. Fitzpatrick, who makes his headquarters at 207½ North Austin street, Seguin. Mr. Fitzpatrick was formerly engaged in prorating work in West Texas and is widely known in oil conservation work of the southwest.

Darst Creek prorating, as previously explained in this periodical, is conducted on a basis similar to that pursued in the Yates field of Pecos county, where acreage units and average potential production are combined in the yardstick used for determining allowable yields of wells and tracts.

Acreage units of 100 acres apply in the Yates field as compared with 20-acre units at Darst Creek; otherwise, the system is identical, the outlet being determined by "nominations" of market quantities by pipelines.

H. H. Fitzpatrick

* * *

C. F. Nicklos, district superintendent of The Texas Production Co., at Hamilton, Colo., is in St. Paul on a leave of absence for his health.

* * *

M. E. Hollern is now in charge of the Ranger-Breckenridge-Moran producing districts of The Texas Co., succeeding R. T. Kendrick, transferred to California.

* * *

G. R. Couper of the lands and leases division of The Texas Co. of California, Los Angeles, has been placed in charge also of scouting work, succeeding H. R. Hamilton, resigned. W. L. Jarvis, chief scout, is now in the Los Angeles office and C. A. Barbour, Jr., has been transferred to Santa Barbara.

* * *

Capt. J. F. Lucey, head of the Lucey Petroleum Corp., Dallas, and wartime associate of President Herbert Hoover in Belgium relief work, addressed the Dallas Geological Society recently on the subject of petroleum industry cooperation. He is convinced, Capt. Lucey summed up, that "unitization" is a human problem, one of research, analysis and education; and that many experiments must be made before any comprehensive plan can be definitely outlined. He urged geologists and engineers to take the lead in developing cooperative work.

Captain Lucey said he is opposed to any plan that restricts the opportunity of the wildcatter, the Independent or the small producer.

"I do not think," he added, "that any such plan is contemplated.

"As a result of many years of association with leaders of our industry it is my belief that they are honest and sincerely working for the benefit of the industry as a whole, realizing that anything that benefits the individual benefits the entire industry.

"Nor could the wildcatter be eliminated if it were so desired. If the larger companies will not finance his wildcat well he will obtain, as before the organization of the majors, money from the general public.

"Under any plan finally agreed upon or put into general practice, the Independent will drill wells and become

prosperous and conservative as his prosperity increases, just as he has always done."

* * *

Carl A. Smith is now field representative of the Skelly Oil Co., at Amarillo, for the Texas Panhande district, replacing K. R. Ransome, transferred to the Seminole, Okla., territory.

* * *

O. F. Haley is now chief scout for the Arkansas Natural Gas Corp., with headquarters at Shreveport. He formerly scouted the El Dorado, Arkansas, district for the Shell Petroleum Corp.

* * *

Frank L. Chase, vice president of the Lone Star Gas Co., Dallas, is president of the North Texas Technology Club.

* * *

H. B. Thompson, now on the Pure Oil Co.'s engineering staff at Fort Worth, formerly occupied a production post with the Indian Territory Illuminating Oil Co., at Seminole, Okla.

* * * *

L. J. King, formerly at the head of the Associated Oil Co.'s producing activities in California, is now a member of the board of directors of the Sunset Pacific Oil Co., Los Angeles.

Central Power Pumping Discussed By El Dorado Field Men

By John Power
N. P. N. STAFF WRITER

ELDORADO, Kans., Feb. 5

WHETHER or not to install a central oil field pumping power is best decided by the local conditions, according to field men who attended the meeting here last night of the Eldorado, Kans., field chapter of the American Petroleum Institute Division of Production.

Local conditions include the depth and size of the wells, the number of wells to be operated, their respective distances from a comparatively central point, and the topography of the district.

The development of central power plants has progressed to such a point that it is impossible now to set a definite limit on the actual depth of wells which can be operated successfully on a power. Several instances of pumping wells at depths of more than 4000 feet are recorded as satisfactory.

The question of the value of the production obtained from such wells is the determining factor as the cost of installing such a plant, for deep wells, is naturally greater.

Nor is it easy to say just what size wells may be properly placed on a central power. Many production departments are reluctant to place a well on the jack that is making better than 100 barrels of oil daily. Wells that are making five times that much fluid, but whose oil production makes up but a comparatively small part of the fluid handled, are quite willingly turned over to the power builders, though water is heavier and harder to handle than straight oil production.

This reluctance of the production executives to put on the power the larger class of pumping wells is traceable to the one inherent weakness of power pumping, said N. M. Hutchinson, field engineer with the Empire Oil & Refining Co. That weakness, said Mr. Hutchinson, was that, when the power engine went down, all wells automatically went down, too. For example, where ten wells were being pumped from the power, if the plant was down for two hours, it meant 20 hours of down time on the wells.

Low Upkeep Is Factor

To offset this one disadvantage there were many factors in favor of central powers, said Mr. Hutchinson. It was cheaper to run one engine than ten, he pointed out. It was easier to keep one engine in good repair than to keep ten. It required less fuel, less lubricating oil, and less labor, he said. Another point which helped to make the central power a practical producing method, he said, was that power houses are better built than the ordinary engine houses of the pumping rigs, a fact which was particularly significant during severe weather.

Mr. Hutchinson cited one instance of a well making close to 200 barrels which had been placed on the power only after it had been agreed to leave the pumping rig in place for emergency. The well has been operating on the power for 18 months without the pumping rig having yet been found necessary.

Salvage Value Considered

The factor of cost, always important, has many angles in deciding to install a power, discussion at the meeting brought out. Salvage is one of the principal items to be taken into account, it was said. While the book value of the material that might be salvaged by replacing pumping rigs and individual engines might appear large, unless there was a real use for the equipment salvaged, it might be well to leave the equipment in place until a real need for it elsewhere develops. There is little point, it was decided, in putting in a power to release pumping rigs and engines if they are to stand idle thereafter.

Nor is it possible to establish a hard and fast ratio between the depth of the well and the distance from the power which makes it practical to produce on the jack. In the experience of the field men who expressed themselves at the meeting, it was generally conceded that from one and one-half to two times the depth of the well was as long a distance as it was good practice to try to pump from a power. At this point one of the field men inquired from which part of the capitol rod lines would be run when the Oklahoma City pool wells were put on the power.

Overcoming Drag of Friction

One of the principal problems to be overcome in the central power layout is the heavy drag of friction of the rod lines by which the jacks are operated. Well weighing experiments have shown that 50 per cent more power is transmitted to the rod lines at the hook-on links than at the jacks. For example, on one well on which definite figures were available, there was recorded a power input of 1.55 horsepower on the polished rod; the power input on the shackle rods at the power house was noted as being 2.25, about 50 per cent greater.

The efforts to reduce this loss of power are taking several directions. Plotting the tops of the carrier posts in a catenary curve has been found helpful as it reduces the drag of the rod line against the carrier heads. As a good rule of thumb method by which it is easy to determine whether or not the rod line carriers are too high, and thus causing too much friction, it was stated that, with a properly laid out rod line, it is possible to hold the shackle rod line up

from the carrier heads by hand even on the up stroke.

Balancing the Load on the Power

Proper balancing of the load on the power is another thing which can not receive too much attention, it was said. A properly balanced power means longer life for the belt, and more carefree service from the engine and other equipment.

The balancing of the power can be achieved in several ways, it was pointed out. Particular attention should be paid to the selection of the site, in order that the natural position of the wells to be operated may be used in balancing the power.

It was considered good practice by the majority of the production men present to set up dummies for use on powers where wells are pumped but part time, but where the power is run either straight time or with part of the wells on and part off. The saving in the wear on belting equipment alone was considered sufficient to recommend this practice.

Development of Central Powers

During the discussion some history of central power pumping was brought out. The birthplace of this type of equipment is said to be the Oil Creek field in Pennsylvania, the power being water driven. The next step in central power development was to cast iron, geared powers, and then to the push and pull type. Then came the band wheel type similar to that used today.

At first all eccentrics were above the power. This was considered essential because it was necessary to keep the rod lines well above the surface of the ground on account of the deep snow in winter.

Gradually the increased efficiency of the underpull type of power became apparent, and it was developed about 1908 or 1909. In 1911 came the steel rimmed band wheel, replacing the wooden rimmed wheels of that period.

File 30 Applications to Drill In Playa del Rey Field

LOS ANGELES, Feb. 7

WITH the interest of the California industry engaged in curtailment proceedings there has been little opportunity for any activity along development lines.

Several deep tests in the Santa Fe Springs field threatened to bring the record for having the world's deepest producing well to California.

Oscar Howard's Hathaway 7 is standing recemented at 8900 feet after having been drilled to 9357 feet. Oil sands cored during drilling failed to yield commercial production although company engineers report a strong gas pressure. When the pressure is removed from the tubing the well develops into a water well and every effort to shut the water off has resulted in failure.

George F. Getty completed his No. 35, in the southeastern edge of the Santa Fe Springs field for 600 barrels of oil per day from a depth of 8300 feet but the well was later put on the compressor due to a scarcity of gas in the formation.

Associated Oil Co. is swabbing its Fulton No. 4 with the bottom of the hole at 8330 feet on the extreme western flank of the field. This company has also drilled its Fulton 3 to below 8300 feet in the same section of the field but a frozen drill pipe held up the production test.

With 30 applications filed for permission to drill in the Playa del Rey district southeast of Venice, the Los Angeles City Council is expected to rezone the area and permit active exploitation to get under way. Holders of large acreage in the district are not at all anxious to start drilling as the oil is reported to contain considerable sulfur and as the gravity averages only 23 or 24 degrees.

Thomas Barton's well in the Potrero field, southeast of Inglewood, which came in last week for an estimated production of 200 barrels of high gravity oil is reported to be making only 175 barrels of 47 gravity oil. As other completions in this area sanded up soon after they were brought in operators offsetting the Barton well are preparing to start another effort to secure production from the field.

Development of edge wells in the Signal Hill area is due to be increased soon as a result of the completion by the Calmex Oil & Refining Co. of its No. 5 well for 1600 barrels of 30 gravity oil from a depth of 8008 feet. In excess of 3,500,000 cubic feet of wet gas accompanied the oil with a gasoline of 3 gallons per thousand cubic feet. This well is in the same area as the Apex well drilled to 7987 feet, which came in for over 2000 barrels of oil. It is now producing over 1000 barrels although beaned-back appoximately 40 per cent.

Gas Line in Montana

CASPER, Wyo., Feb. 8.—A pipe line for natural gas will be laid from northern Wyoming to Butte, Montana, by the Hope Engineering company of Mount Vernon, Ohio, and the Moody-Seagraves interests of Houston. The line will be approximately 310 miles long and will supply the smelters at Butte and Anaconda with fuel and the cities of Butte, Anaconda, Helena and intervening points along the line with fuel for domestic and industrial consumption. It is believed that the system when completed will cost in the neighborhood of $20,000,000. Several of the more important operating oil and gas companies in the Rocky Mountain region have assured an ample supply of gas for the enterprise.

Sinclair Crude Executive Dies in Tulsa

TULSA, Feb. 8.—William R. Capron, assistant to the president of the Sinclair Crude Oil Purchasing Co., died Feb. 8 in a Tulsa hospital. He had been ill for about three weeks, suffering from a malignant form of anemia. He was 43 years old.

Mr. Capron was a native of Texas. He joined the Sinclair organization after he left the army in 1919. He had had prior service with other oil companies in the fields of the southwest. He spent two years in Casper, Wyo., as agent for the Sinclair Crude when that company was awarded the contract to purchase the government royalty oil.

He is survived by his widow and by two sons, four and one year old. His father and mother live in Griffin, Ark.

Wyoming's Governor Talks Oil With Hoover

WASHINGTON, Feb. 10.—Governor Emerson, of Wyoming, told President Hoover at the White House Feb. 6 that the Rocky Mountain states are not producing enough petroleum for their own use. From that the governor argued that, in so far as Wyoming was concerned at least, there should be an exception to the policy of no permits to prospect for oil on the public domain.

"I told the President," said Gov. Emerson, "that Wyoming would like to have some new oil and gas prospecting permits issued under the national leasing law because we need additional oil, especially light gravity oil."

Seemingly, the governor produced no effect on the President. The latter told him that the Commission on Administration and Conservation of the Public Domain was working on the problem and probably would have its report ready in a few months.

That declaration attracted some attention, because when the commission was created, it was asserted that body would not have anything to do with oil questions, such being considered the scope of the Federal Oil Conservation Board.

On the Western Front

By Jack N. Westsmith
Los Angeles

FOREIGN engineers are expected to form an important part of the attendance at the Oil Equipment and Engineering Exposition at the Shrine Auditorium, Los Angeles, March 16-23. A number of foreign technicians have already arrived in this country for the purpose of attending the exposition and others are known to be on their way. Among the recent arrivals are the following Russian engineers: N. Anissimov, N. D. Elin, N. I. Nurenberg, C. A. Gander, L. A. Ladygin, V. N. Pisako, V. M. Korobovkin, W. G. Pissakov, M. I. Alexeev, P. A. Berejanoff, and George S. Tomaschevsky.

P. A. Berejanoff is head of a group of engineers sent to this country by the Soviet government to study conditions in American oil fields and report back to the technical staff in Russia. He is chief engineer, Department of Drilling and Production, Technical Bureau, U. S. S. R. He is accompanied by his interpreter, George S. Tomaschevsky, who also represents the Amtorg.

B. P. Boots, production engineer, De Pataafsche Petroleum Maatschappy, Technicll Department, Royal Dutch Shell, The Hague, Holland, is also in this country and will attend the technical meetings of the exposition to be held on March 20 and 21. He is a graduate of Delft University and, in addition to engineering experience in German oil-equipment factories, has served his company in Borneo and Tarakan Island, as well as in many of the other fields in the Dutch East Indies. He is particularly interested in equipment and procedure connected with air and gas lift work and in the pressure drive.

* * *

Pat. Longan, in charge of Milham Exploration Co.'s activities on the Pacific Coast, has been away from his desk for several weeks due to ill health. Through his active participation in the Kettleman Hills situation Mr. Longan has become well known to California oil operators and his absence at this time of crisis in that area is keenly felt by other operators.

* * *

R. S. and Alfred McMillar, president and executive vice president of the Macmillan Petroleum Co. returned recently from a trip to the eastern seaboard where they arranged the 1930 program for the company's refineries in Texas and Arkansas.

Joseph Zeppa, in charge of sales for the same organization, also returned recently from an eastern trip during which he opened an office in Chicago for the handling of the company's eastern distribution.

* * *

H. Foster Bain, secretary of the American Institute of Mining and Metallurgical Engineers, made a brief visit to the Pacific Coast recently to enjoy some of California's weather and incidentally to do a little work.

* * *

John Kinkel, geologist for the Independent Oil and Gas Co. is in California to determine the opportunity for his company to actively engage in production and development work on the Pacific Coast. He has opened offices in the Quinby building, Los Angeles.

* * *

Claude C. Brown, natural gas administrator of the California State Railroad Commission was recently appointed to succeed Charles S. Grunsky, gas and electrical engineer for the commission, who resigned. In addition to his new duties Mr. Brown will continue to act as gas administrator.

* * *

William F. McLaughlin, well known lawyer, has been elected to the board of directors of the California Mammoth Oil Co., according to Herman Layer, executive vice president of that company, which operates in Oklahoma and Nicaragua in addition to California.

* * *

Reese R. Hall, manager for Richfield Oil Co. in the northwest recently returned to his headquarters in Seattle after a vacation of several weeks in Southern California.

* * *

N. S. Ross has been appointed general manager of the Oil Field Equipment Exhibiting Corp., located in the Chamber of Commerce Bldg., Los Angeles. Although the project will not be in full swing for several months it is reported that the announcement of a permanent exhibition will find favor with many manufacturers.

* * *

C. O. Sprenger, oil publicist, recently issued the 1929 issue of the California Petroleum Year Book, containing lists of companies, associations and individuals actively engaged in producing, refining, marketing petroleum and its by-products, in manufacturing natural gasoline lubricating oil, greases during the year.

* * *

H. R. Hamilton, formerly chief scout of The Texas Co., in California resigned recently and it is understood that he will open offices in Los Angeles soon in his own name. G. R. Cooper has been made supervisor of the scouting department of The Texas Co. and Bill Jarvis now fills the capacity of chief scout.

* * *

David E. Day, refinery engineer of Richfield Oil Co., is on the Atlantic seaboard making a survey of the plants and equipment of the seven companies recently acquired by Richfield's subsidiary, in the east.

* * *

Judge E. D. Reiter, formerly legal counsel for Miley Oil Co., and more recently general legal counsel for the California oil industry with offices in Subway Terminal Bldg., Los Angeles, has been laid up for nearly a week with a slight illness which may have been brought on by the numerous trips the Judge, has taken, via the air route, to San Francisco and way points in his attempts to straighten out California's overproduction problems.

* * *

Jack C. Ballagh, secretary for Patterson-Ballagh Corp., is making another one of his numerous trips to the east in connection with company business in the Mid-Continent and East.

* * *

Richardson S. McIntyre, formerly instructor in Petroleum Engineering at the University of California, Berkeley, will teach a class in petroleum technology being organized by the extension division of the university of Los Angeles. The class includes fundamentals of chemistry and geology, and prospecting, drilling, transportation, and storage of crude petroleum.

* * *

Everett Johnson, formerly in the Los Angeles advertising department of The Texas Co. of California, was recently transferred to The Texas Co.'s offices in New York where he will edit company publications.

"Breather" Type Tank Roof Developed To Reduce Evaporation Loss

CLEVELAND, Feb. 8

THE "breather" type tank roof is the latest development in the art of reducing evaporation in oil storage tanks. A report* recently issued by the U. S. Bureau of Mines gives the results of tests made to determine evaporation losses in tanks equipped with the breather roof, and a description of the construction of the roof, its installation, and the manner in which it works to reduce or prevent losses.

This type of roof is manufactured by the Chicago Bridge and Iron Works and was developed by John Wiggins, inventor of the floating roof.

According to the report the breather roof compensates for all expansion of vapor and oil during rise in temperature or for other causes, and thus relieves the owner of storage tanks of the necessity of venting tanks to take care of this expansion of contents. A test of several months' duration failed to show any measurable loss of vapors in a special test tank at the Bartlesville station. The test was conducted in the hottest part of an Oklahoma summer but pressure measurements showed that at no time was the roof expanded to its fullest extent, having room to spare to permit greater expansion if such had occurred.

A test carried out on an 80,000-barrel tank in actual service also indicated that little or no loss occurred, although bottom leaks in the tank and the opening of hatches frequently by parties interested in the results of the test caused slight losses which could not be exactly measured, but which could not be attributed to any fault in the work of the roof.

The author of the report, Ludwig Schmidt, describes the roof as "an all steel or welded roof which slopes downward from its outside circumference toward the center for a short distance, and then is level to the center. It forms an inverted frustum of a cone with an altitude of about 8 inches. In an 80,000-barrel tank (117 feet in diameter) this roof slopes downward from the outside circumference for about 20 feet toward the center and then is practically level to the center.

"As the roof is attached to the tank around the top angle only, it is in reality a large diaphragm which upon expanding assumes a dome shape. The amount of rise at the center is 24 to 26 inches in a tank 117 feet in diameter. In smaller tanks the rise is less; for example, in a tank 60 feet in diameter the breather will rise about 20 inches at the center.

"Since the actual altitude of the inverted frustum of the cone is only 8 inches in an 80,000-barrel tank when the roof plates are resting upon the rafters, it is desirable during construction to provide excess metal in the roof so that its maximum expansion at the center will be 24 instead of 16 inches before the roof plates are under tension. This excess metal is provided by blocking up the center post 8 inches during construction so that the rafters at the center of this tank are about 1 inch below the top angle iron.

"The second ring of posts is blocked up so that the tops of the rafters at the points directly above these posts are about 5½ inches below the top angles. The outside group of posts or columns which are 20 feet from the shell are maintained at their normal height during construction; that is, the tops of the rafters are about 8 inches below the top angle.

"The roof plates are then laid on the rafters and welded or riveted to each other as well as to the tank at the top angle. After the roof is completed the extra blocks from beneath the center column and middle group are removed, and the roof and framing are lowered to their normal position.

"If necessary the rafters slip slightly at the bolt holes where they connect to the girders. This method of construction permits a rise of 24 inches at the center in a tank 117 feet in diameter before the plates get taut. The volumetric expansion is between 11,000 and 12,000 cubic feet. In this type of roof the rafters are fastened to the girders and the roof sheets are attached to the tank only around the top angle iron.

"The value of this roof in reducing evaporation losses is shown by comparing it with a tank equipped with a standard conical roof with a pitch of one-half inch per foot. In an 80,000-barrel tank (117 feet in diameter) equipped with a conical roof and filled with crude oil to within 8 inches of the top, the vapor space above the surface of the crude in the tank would be about 11,600 cubic feet.

"Assuming a temperature variation of 40 degrees Fahr. during a 24-hour period, the increase of volume due

Work to determine the efficiency of the "breather" type tank roof, reported in this paper was carried on by the U. S. Bureau of Mines and the State of Oklahoma, cooperating with the Indian Territory Illuminating Oil Co. This company furnished the oil and the tank for the field tests made.

*U. S. Bureau of Mines R.I. No. 2984, Jan. 1930, by Ludwig Schmidt. This paper represents work done under a cooperative agreement between that Bureau and the State of Oklahoma. Report obtainable from Bureau of Mines, Washington, D. C.

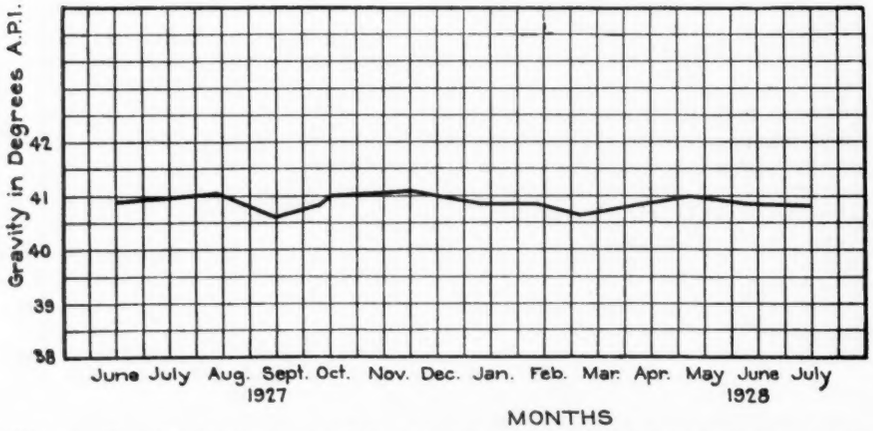


Fig. 1—Gravity in degrees A.P.I. of crude oil in 80,000-barrel storage tank equipped with breather roof

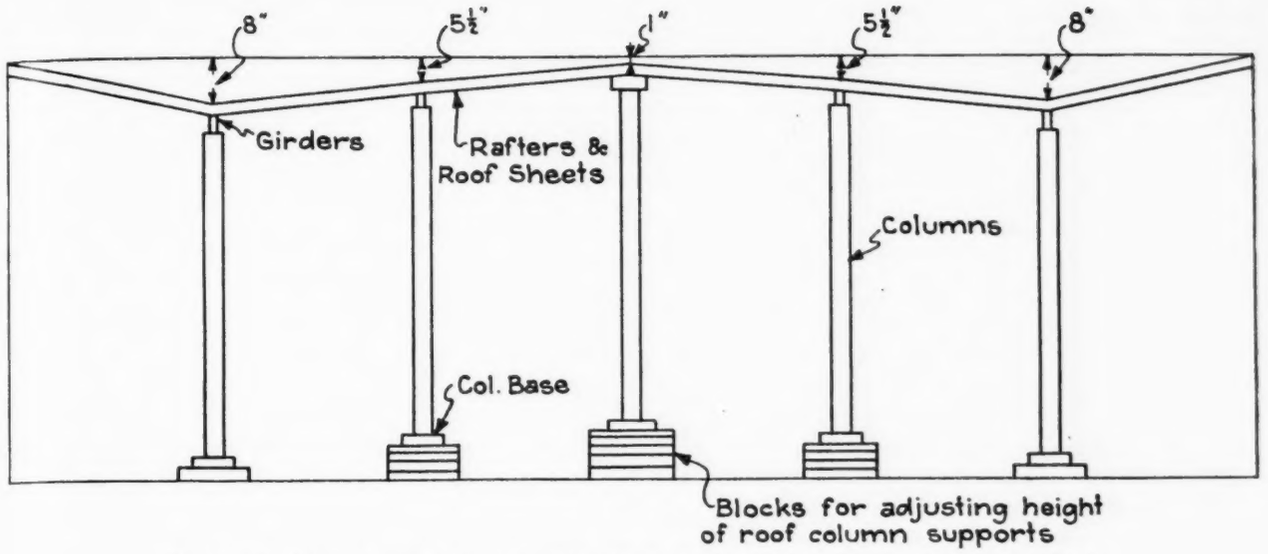


Fig. 2—Position of roof columns and rafters while deck sheets are laid and welded

to temperature alone would be about 900 cubic feet, which means that during the period of rising temperature 900 cubic feet of gasoline-laden vapor would be forced from the tank to the atmosphere, and a like amount of fresh unsaturated air would be drawn into the tank during the period of falling temperature.

"It must be remembered that the breathing of a tank is not alone due to variation of the temperature of the vapor space, but also is caused by variation in atmospheric conditions such as barometric pressure, variation in wind velocities as well as changes in vapor pressures of the liquid surface, and variation in the volume of the liquid due to changes in temperature. These combined effects would greatly increase the amount of the "breathing of the tank" over that calculated solely from the temperature changes of the vapor space.

"Under the same conditions an 80,000-barrel tank (117 feet diameter) equipped with a breather roof and filled to within 8 inches of the top so that the roof just rested on the surface of the oil, would have a vapor space above the crude of about 2800 cubic feet. Assuming an increase in temperature of 40 degrees Fahr. during the 24-hour period the increase of volume due to temperature alone would be about 224 cubic feet.

"Since the expansion of the roof allows for a total vapor space of 12,000 cubic feet above the oil surface it is evident that there is more than enough additional space available to take care of all breathing due to the temperature variation in the vapor space, as well as breathing caused by the change in the vapor pressure of the average crude oil. For example, assuming the vapor pressure of a given crude to be 3.8 inches of mercury at 70 degrees Fahr. and 6.5 inches of mercury at 110 degrees Fahr., then the increase of volume of the tank vapors due to increase in vapor pressure above would be about 9.2 per cent."

Figures 2 and 3 illustrate in part the construction and arrangement of the roof.

The roof is also equipped in regular service with direct-acting mechanical volume-control valve, actuated positively by volume increase of the liquid contents of the tank, instead of by a rise in gas pressure. A vacuum relief valve of the liquid-seal type, using glycerine as the sealing medium, is provided, to further prevent the development of excessive pressure on the roof by either increase or decrease of pressure within the tank.

Results of the test on a special experimental tank are reported in part as follows:

"In discussing the first part of the test it should be realized that the total expansion of this roof was 24

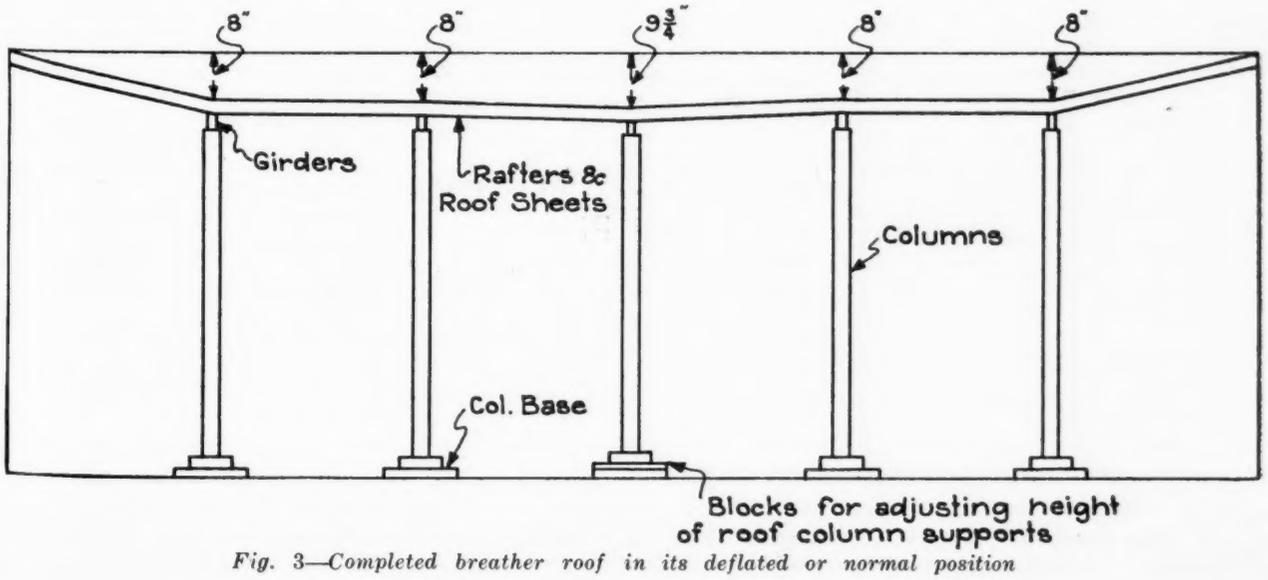


Fig. 3—Completed breather roof in its deflated or normal position

inches and its diameter was 29 feet 6 inches. When this roof is compared with an actual installation on a tank 117 feet in diameter with a total expansion of 24 inches at the center it will be seen that the experimental tank had a total flexture at the top angle of the shell four times as great as the commercial installation on an 80,000-barrel storage tank. The mechanical test of the roof consisted in expanding and contracting it the full amount 293 times. After this test the roof seams were carefully examined for leaks and other evidences of failure. There was no evidence of break in the roof.

"The second part of the test consisted of filling the tank to 3 feet 11 inches with water, on top of which was floated 106 gallons of gasoline. This gave the tank a total outage of 14 inches or about 2 inches below the lowest point of the roof when it was deflated. The gasoline level was determined by a look box equipped with needle-point measuring devices attached to the side of the tank. This permitted a direct reading of the gasoline in the tank.

"The temperatures of the vapor space were determined by recording thermometers, and the temperatures of the liquid were taken with ordinary mercury-filled thermometers placed in thermometer wells looated at different points in the tank. The evaporation test started May 7, 1927, and ended March 10, 1928—a period of 10 months. The gasoline used had a gravity of 60.2 A.P.I., 10 per cent of which distilled over at 124 F., 50 per cent at 261 F., and the end point was 438 F.

"Although the test period covered the hottest period of the year, there was no evaporation loss that could be measured with scales reading to one-hundredth of an inch. The maximum temperature of the vapor space during the test period was 152 F. During the months of July and August, 1927, the average daily maximum temperature of the vapor space was 132 F. and the average minimum temperature was 76.5 F. This gave an average daily temperature variation of 55.5 F. At no time during the test period was the roof fully expanded."

Data on the test made with the field tank were incomplete, as referred to above; partial distillation and gravity data in Table 1 show however that the loss was slight, and doubtless attributable to the opening of the tank, should not be done under actual service conditions.

Table 1

Data on Crude Samples Taken From 80,000-Barrel Test Tank, Equipped With Breather Roof

Date	Gravity of Crude, °A.P.I.	Initial Boil. Pt. °F	50-Per cent Point °F.
June, 1927	40.9	75	487
September, 1927	40.8	77	487
March, 1928	40.8	78	484
June, 1928	40.8	80	487

The report further discusses the effectiveness of the breather roof in preventing tank roof corrosion, stating that many users fill tanks thus equipped to one or two inches above the top angle, the roof then rests on the oil and eliminates entirely the vapor space between roof and oil surface. An arrangement is described wherein a 5000-barrel overflow tank is connected to one or more large storage tanks by 2-inch lines to receive the overflow from the tanks when expansion of the oil occurs with rise in temperature. Siphon-breakers prevent the carrying of the oil over into the small tank after natural overflow has stopped.

As a result of the tests the author concludes that:

The first breather-roof equipped tank was apparently giving good service after two years and five months of operation.

To obtain the greatest benefit from such equipment tanks should not be opened except during the cooler parts of the day, unless equipped with gage wells.

If tanks so equipped are filled until roof rests on the liquid, the fire hazard should be less than with the ordinary roof.

New Company to Finance Calif. Gas Line

LOS ANGELES, Jan. 23.—Standard Oil Co. of California has joined with the Pacific Gas & Electric Co. to form a new transportation company known as the Standard Pacific Gas Line, Inc.

The new utility company was formed to finance and operate a natural gas line from the Kettleman Hills district to the San Francisco bay area.

This new line will be in addition to the present 20-inch line recently completed by Pacific Gas & Electric from Kettleman Hills to San Francisco, and will furnish Standard with natural gas for its distribution through its subsidiary in Contra Costa county, south of San Franciso. By avoiding duplication it is estimated that a saving of $8,000,000 will be made.

Record Is Set for Laying Big Pipe

TULSA, Jan. 25.—A new speed record in the laying of "big inch" pipe line is claimed by the firm of Truman & Smith. Their feat of putting 19,400 feet of 16-inch, 42-pound, 30-foot lengths, dresser type coupling pipe into service in seven hours and 40 minutes, stands considerably above other marks set.

The crews were not just shooting at this one record, for in three working days of eight hours each, 45,000 feet of this same pipe was laid. Though the three-day accomplishment may not be a record it certainly indicates that there was no "corking off" on the part of anyone in the gang.

The above record was made near Clay Center, Neb., while the company was engaged in laying the 169 miles of 8-inch, 12-inch and 16-inch line from McPherson, Kansas, to Grand Island, Neb. for a Cities Service company. Work was started on this line Aug. 18 and finished Dec. 15. The actual laying of the pipe was done by a crew of 37 men using the most modern pipe laying equipment.

At the same time, the firm of Truman & Smith was laying three 8-inch welded lines totaling 166 miles to three different cities. One from Humboldt to Fort Scott, another from Hutchinson to Lyons and a third from Atchison to Falls City, Neb.

Appropriation Urged For Federal Oil Board

WASHINGTON, Feb. 10.—Believing that the Federal Oil Conservation Board can and will do useful work for the next year or two, the Department of the Interior is standing sponsor for a continuance of that body. Some time ago it submitted an estimate of $25,000 for the year beginning next July. That estimate was cut to $22,220 by the budget bureau. The item is now before the appropriation committee of the House of Representatives.

If no item is included in the appropriation bill the board will die soon after July 1.

E. C. Finney, solicitor of the Department of the Interior, has urged the allowance of that sum for the board. He pointed to the three reports made by it and the conference held at Colorado Springs, which he said, had an educational value, and was subject to reconvening at the call of president Hoover.

Mr. Finney said, as to the future work of the board, that one of the things would be the securing of uniform laws, or as nearly uniform as possible, for the conservation of oil and gas and the prevention of waste. That, of course, he said, would have to be done through state legislation, but that the board could coordinate and carry on an educational campaign, not only for the prevention of waste but for the unit development and operation of oil and gas fields.

Further study of foreign oil production, Mr. Finney said, could be carried on "and particularly the question of imports of oil as affecting American oil interests."

KANSAS CITY—Roy Reed of the Kanotex Refining Co., president of the Kansas City Oil Men's Club, was recently released from Research Hospital after two operations.

ADVERTISING PAGES REMOVED

Old Well Gains in Production After Being "Graveled"

BARTLESVILLE, Feb. 5—AN INCREASE in production and a decrease in operating costs are results of the first "graveling" job on an Oklahoma oil well. This method, introduced in Kansas several months ago and described originally in these columns, has been followed in that state on several more by the Empire Oil & Refining Co., which originated the method.

The process is that of reconditioning a well by filling the space below the pipe, or the shot hole, as the case may be, with gravel. The hole thus filled is not subject to caving, calling for expensive cleaning out and there is less tendency for floating sand to enter the working barrel and cut out cups.

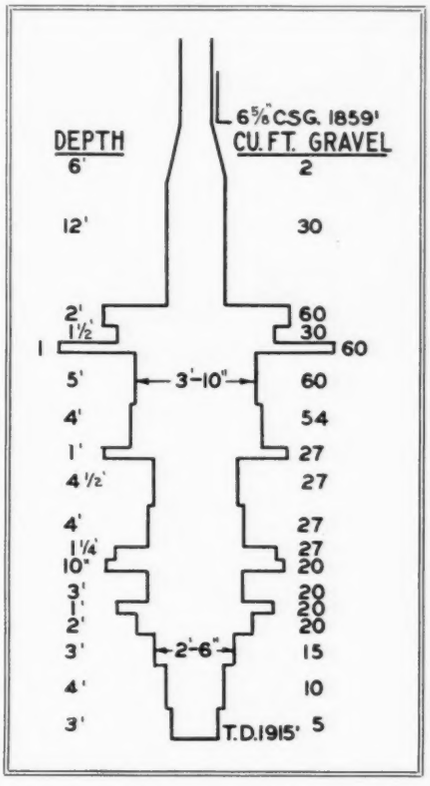
The accompanying drawing shows the probable form of the well Hotson No. 16, in 25-22-4W, in the Garber area of Garfield county, Okla. Measurements were made on the "pick up" of the bailer. Average diameter of the hole was three to five inches. The depth which was filled with gravel was 59 feet. Some of the gravel filled up inside the casing and was removed. It required 514 cubic feet of gravel to fill the space, or 19 yards. As the average wagon load of sand or gravel is about one cubic yard, the size of this job is seen to have been a large one.

Drilled in 1915 to production in a stray sand known locally as the Hotson, the well had given much trouble from caving. The pay sand has no caprock and apparently nothing to separate it from the shales below. Its extent is not known. The size of the hole is due partly to the frequent cleaning out jobs. The shale is of a type which sloughs into the hole.

Prior to the filling with gravel the well was cleaned out and tested. It made 11 barrels in 24 hours. At this time the 6⅝-inch casing was on bottom, perforated. After the test it was raised to position shown in the drawing and a bridge placed above the sand. It was cemented with 50 stacks by the circulation method, then cleaned out, swabbed and filled with gravel. On Dec. 10 it pumped 40 barrels and for the five days following it averaged 23 barrels.

A 5 3/16-inch perforated liner was run to bottom. This is carried through the gravel by running light tools inside the liner. The gravel is displaced sufficiently that the liner follows down. This liner was welded.

Water worn gravel, say Empire men, must be used to give the proper void space. Crushed rock will not do. The gravel is screened, in this well to one-half to 1-inch mesh size. This screening results in considerable waste and amount which goes into the well is no indication of the quantity that was hauled from the creek bed to the well.



Diagrammatic representation of bottom of Hotson No. 16 well, showing space filled with gravel

This well is being pumped with a flood nipple located three feet above the sand, thus keeping the sand covered with oil and reducing the paraffin accumulation in the gravel.

Royalty Owners Hold Annual Meeting

TULSA, Feb. 6.—Adopting resolutions commending the Mid-Continent purchasing companies that have not met the new price reductions, and reaffirming their stand on high tariff on foreign oil, the Oklahoma division of the Mid-Continent Royalty Owners Association aligned itself with other organizations on these current questions in the annual meeting in Tulsa, Jan. 22.

At the same meeting J. Monte Hayner was elected president to succeed Wade H. James. Carl Blackman, Mid-Continent manager of the J. Edward Jones interests was chosen vice-president and J. Russel Simpson, president of the Home State Royalty Co., secretary and treasurer. Guy H. Woodward was reelected chief counsel.

The new board of directors inclues Wade H. James, chairman; Willard Foster, first president of the Oklahoma division; Guy H. Woodward, J. R. Simpson, Carl Blackman, W. E. Brown, Frank H. Greer, Earl Sneed, C. J. Wrightsman, J. M. Hayner, M. C. BreDahl, A. W. Dustin, P. N. Wiggins, Jr., J. G. Catlett, and Fred T. Hildt, all of Tulsa.

J. Edward Jones of New York City; Irving Perrine, W. G. Johnston and Frank Douglass, of Oklahoma City; Harlan Read and E. P. Jones of Okmulgee; J. W. Meazel and J. A. Ingram of Shawnee; Dr. W. E. Grisso of Seminole; Frank H. Reed of Neosho, Mo.; Lee Scott of Wichita, Kans., and Charles Roberts of Winfield, Kans.

California Exposition Space Sells Fast

LOS ANGELES, Feb. 6.—When the Oil Equipment and Engineering exposition in the Shrine Auditorium, Los Angeles, opens its doors on March 16, booth space is likely to be at a premium. California oil operators and equipment manufacturers have rallied so strongly to the support of the project that although the opening date is still two months ahead, contracts have been signed for practically all the choicest booth spaces, and the late comers will have to be content with second choice. Already the talk is of the need for a larger building next year.

Equipment, tools and supplies used in practically all branches of the industry will be exhibited. Glass models and working models will be used largely to demonstrate construction and methods of operation.

Government bureaus have been asked to combine with colleges and other educational institutions in providing special exhibits for a scientific and technical section.

Well-surveying instruments and other means adopted to ensure straight-hole drilling will be assembled as a group in this section. All available devices will be included and the makers of the devices will be asked to arrange for the attendance of an expert to explain how the devices operate and what their special advantages are. When the actual devices cannot be shown, photographs and illustrated descriptions of the devices will be collected for reference and comparison.

An attempt will be made to show the evolution of drilling bits from the

original cable tool bit to the latest rotary bit. Bits designed for use with special drilling units or intended to overcome difficult drilling conditions will be included.

Management of the exposition will be in the hands of a board of directors consisting of the following oil company executives: A. H. Bell, general superintendent, Continental Oil Co.; J. A. Bermingham, vice-president, The Texas Co.; Ward B. Blodget, assistant manager, Chanslor-Canfield Midway Oil Co.; C. M. Fuller, president, Richfield Oil Co.; F. F. Hill, manager of field operations, Union Oil Co.; L. E. Lockhart, president, Rio Grande Oil Co.; William C. McDuffie, president, Pacific Western Oil Co.; Neil Norris, manager of production, MacMillan Petroleum Co.; R. A. Sperry, vice-president, General Petroleum Corp.; and L. P. St. Clair, vice-president, Union Oil Co. E. G. Lenner is managing director.

WHAT MAKES THE WILDCAT WILD
1 GEOLOGIZING
$4.00 AN ACRE!
DON'T MAKE ME LAUGH—
2 LEASING
SW¼ NW¼ 16-32E-8N AND—
3 CHECKING TITLES
HMMM! $120,000.
4 APPROPRIATION APPROVED
5 MOVING IN MATERIAL
WELL!
—!!
6 SPUDDING AND FISHING
YOU SAY YOU LOST THE BOILER?
NO - THE BAILER — AND WE NEED SOME MORE PIPE AND CANNED STRAWBERRIES
7 DAILY DRILLING REPORT
AND IN THE LANGUAGE OF THE MOVIES: "CAME THE DAWN"
8
WELL MADE 5,000 BARRELS OF WATER FIRST 24 HOURS. WILL PLUG AND ABANDON.
SUPT
164! YOU BANDITS OUGHTA GET RICH AT THAT RATE!
?
9
Cory

Modern Refining—Science and Practice

By Colonel George A. Burrell*

Article 10

Development of Cracking Equipment; Polymerization and Condensation; Effect of Temperature

IN EARLY days as much as 75 per cent kerosene of wide boiling range was produced by cracking Pennsylvania crude oil at atmospheric pressure in batch shell stills equipped with one reflux tower. As the crude oil was introduced as such, the light products distilled off and the heavy products which did not boil off as such, cracked as the temperature was raised to 700 F., or thereabouts. Such an operation was that of Wm. Atwood, in 1860[1].

Later, residue from the primary distillation was transferred to tar stills for further cracking. Then followed the so-called tower stills; a still with several towers, where cracking followed distillation in the same still. The operation was carried clear to coke.

Cracking was carried to the extent where asphalt was destroyed but not enough to destroy too much of the lubricants. To accomplish this not much refluxing was practiced. In earlier days the lubricants and fuel oil were largely cracked to make kerosene.

The Burton still was a development from the shell still. Charging stock had to be selected that would not produce too much coke, else hot bottoms early developed. Hence gas oil was used. In taking off 55 per cent of pressure distillate, up to 0.20 per cent coke (based on the raw charge) could be tolerated. Ninety per cent of it was thrown down with the last 5 per cent of pressure distillate taken off.

The Burton-Clark still, with tubes slung under a shell still, combined some of the advantages of a tube still, with a shell still. Tubes, not plates, received the fire heat, and some circulation of oil occurred due to a thermo-syphon effect.

Pressures were limited to about 95 pounds because of limitations of the strength of shell stills. Temperatures were kept down to 725-760 F., else distillation rates went up too fast and less cracking occurred. However, special high strength shell stills were built to crack pressure distillate bottoms. These stood 325 pounds pressure, but were expensive.

By comparison with today's processes the Burton process used shell stills of low capacities, low pressures and temperatures, and was limited to distillate charging stocks, principally gas oil. Like it has almost everything else, years of development have speeded up cracking progress.

Work was done during the war period, and for a short time thereafter, by Hall, Rittman, Alexander, Parker, DeFlorez and others on tube still vapor phase units. They operated at high temperature, up to 1200 F. or more, and operated under pressure or not. They more or less survived because of war time needs and then went out of the picture. But they contributed not a little to the advancement of the cracking art.

In the meantime, the present tube-still-reaction-chamber type of cracking unit was under development. Dubbs and Cross were particularly active and work was done by The Texas Co., Standard Oil Co. of New Jersey and others. This general type of unit consists of a tube still where the oil is heated, a reaction chamber where the oil is maintained under cracking conditions for some time, a reflux tower where oil is refluxed back to the heating zone, assisted thereto by a hot oil pump, and a secondary tower or not, for so-called end point gasoline. Condensation takes place under more or less pressure.

LATELY, in some units, the reaction chamber functions in a different way than the foregoing. Oil is rapidly withdrawn from the chamber and condensation (coking) reactions are checked. Hence coke is made in only a fraction of the quantity formerly made. Gasoline yields are somewhat sacrificed for the same throughput. Another way to check the reaction is to cool the hot stream from the transfer line with colder oil.

Many variations of this now familiar type exist. One sees them in the Dubbs, Cross, Holmes-Manley, Tube and Tank, Koontz, Doherty, Buerger, Gyro, DeFlorez stills, etc. Sometimes the hot oil goes to a column from which pressure distillate goes overhead, recycle stock from a side stream, and tar from the bottom. Sometimes there are two or more coke chambers; sometimes a secondary fractionating tower; pressures and temperatures vary, some furnaces are more efficient than others, etc., but in all of them the general principle is more or less the same. There are extensive litigations under way to establish priority.

With the development of modern tube stills pressures have gone up, as high as 1000 pounds or more when cracking light oils, and temperatures also have been increased to 1000 F. or more in some of these so-called pressure, liquid phase, units. Thus the reaction has been speeded up enormously and capacities have greatly increased.

Tubes stand high pressure, something shell stills will not stand, and furnaces are now made with efficiency approaching those of some steam boiler furnaces. Further, recycling is extensively practiced, oil velocities have increased, and coke can be largely deposited in reaction chambers, or its production checked, hence residuum stocks can be commercially cracked.

Coke

Coke from cracking is a condensed solid rich in carbon and poor in hydrogen. Little work has been done

[1]U.S.P. 28, 448, 1860.

*Consulting Chemical Engineer, Pittsburgh, Pa.

on its identification or that of the asphaltic material, the so-called heavy residuum of cracking stills. Anthracene, phenanthrene and chrysene have been identified by Prunier and David[2], and picene, $C_{22}H_{14}$, and crakene, $C_{24}H_{18}$ by Klandy and Fink. The higher the temperature the more aromatic the residue becomes. This is well demonstrated in high temperature reactions to make by-products from coal.

Tars thus produced are the principal source of commercial aromatic compounds like anthracene, phenol and naphthalene. When these tars are further cracked the principal reaction is one of dehydrogenation. Low temperature coal tars are paraffinic to a considerable degree. At higher temperatures they become aromatic. There is much similarity between the cracking of coal tars and oils, especially as temperatures are increased.

In cracking oil the amount of hydrogen in the gases increases markedly at the time the oil "dries" down to coke. Hence one of the chief reactions at the coking stage is one of dehydrogenation. This has long been known. Everyone who has operated atmospheric pressure coking stills is familiar with the great increase in gas evolution as the coking stage is reached.

WORKERS around cracking stills are also familiar with so-called red bottoms or tubes. With clean tubes and high oil velocity only a little coke forms because heat flows rapidly through clean steel to the oil inside of the tube where it is carried away. But when a film of coke forms on the inside of the tube, due to local overheating say, the flow of heat is checked and the stills get hot, more coke forms, and thus the cycle continued unless the tube breaks or the unit is shut down. Sometimes the tube can be nursed along, or brought back to its normal condition.

Of the different hydrocarbons the aromatics seem to be real coke formers and paraffins produce the least coke. Sachanov and Tillicheev[3] found in cracking paraffin oil, freed of other hydrocarbons than paraffins, that high yields of light products were obtained with practical absence of gums, asphaltenes and carboids, even at temperatures as high as 450 C. and a comparatively long reaction time, and further, that condensation products are formed from products removed from the charging stock with fuming sulfuric acid. They suggest the following order of coke formation: Aromatic hydrocarbons → gums → asphaltenes → carboids.

The gums and asphaltenes are hydrocarbons consisting of highly condensed aromatic nuclei. The carboids are the substance commonly called coke. Their work, where in one case naphthalene was cracked with no condensation products forming, and in another case where, under the same conditions, anthracene formed a hard, coke like mass, has already been quoted in these articles. Thus, they say, can be explained one reason why different fractions of an oil differ in coke forming tendency.

Herbst[4] found that no coke was produced when paraffin wax was cracked in the presence of activated charcoal, and Minchin and Nixon[5] have noted that no members of the aromatic hydrocarbons are produced by the moderate cracking of paraffin wax. Carpenter[6] cracked wax from Burmah crude oil at 418 C. and 140 pounds for 2 hours, with no coke formation. On the other hand, the high coke producing properties of California oils (strongly aromatic oils) is well known.

It seems safe to conclude that in commercial cracking operations the aromatics are the real offenders from the standpoint of coke formation. The more aromatic the oil to begin with the heavier is the coke formation, but coke can form from an aromatic free stock as the cracking is prolonged to form aromatics.

Residuum from Cracking Units

Residuum oil from cracking operations occupies an important place in cracking operations. In fact it has, in the past (and at some refineries even now) occupied a goodly portion of the refinery. It piled up over some acres of ground because it could not be disposed of. Now, however, it can be burned in the refinery by keeping it hot, by moving in a belt line, and by using specially constructed burners, or sold by mixing it off with straight run fuel oil. But it still acts as a limitation on the cracking process.

The writer has in mind one refinery where an operation is conducted to produce a considerable amount of coke and a minor amount of residuum, rather than a small and negligible quantity of coke and a large amount of residuum because of the difficulty in selling the residuum as fuel oil in the particular market that this refinery enjoys. On the other hand, some cracking units produce from cracking fuel oil, a residuum of 6-7 Be. gravity, of good viscosity, and less than 0.25 per cent of B.S. and sediment. No difficulty is experienced in selling it as fuel oil.

RESIDUUM or tar from cracking stills is like coke, largely unsaturated and cyclic in chemical character. The same types of compounds are found therein as are present in coke in more condensed form. Paraffins (wax) are largely absent as evidenced by the low cold test. They have been destroyed and converted into other compounds. Mild cracking of a heavy oil, such as is sometimes practiced to lower the viscosity for fuel oil purposes, consists mainly in disrupting the wax molecules. These are the substances that are mainly responsible for high viscosity in any oil.

Gas from Cracking Process

Gas from cracking is a product of reactions largely subsequent to primary ones. For instance, high boiling paraffins are split at moderate cracking temperatures at or near the middle of the chain to paraffins and olefins. No gas or coke forms; only large fragments, not small gaseous ones. Long side chain aromatics and naphthenes split off the chains, to form paraffins, hydrogen and olefins, but the amount of gas produced is not large. Olefins in some degree isomerize to napthenes. Gas and coke yields are relatively small. But as the temperature rises additional reactions occur and much gas forms. Hence in modern vapor phase operations the gas yield may be 25 per cent, based on the charging stock, when making 50 per cent of gasoline.

The more oil is recycled the more gas it forms per unit of gasoline made. Thus Sachanov and Tillicheev found that this could vary from 180 liters of gas per kilogram of gasoline made, for fresh oil cracked at 450 C. to 1500 liters per kilogram, for oil recycled the sixth time.

Polymerization[7] and Condensation

One meets polymerization and condensation changes all through refinery operations; in the cracking reaction, in the action of sulfuric acid on light and lubricating distillates, and the action of fullers earth on these distillates. As a result we have coke, heavy residuum, acid sludge, and high end point gasoline as unwanted results, and on the other hand the beneficial action of fullers earth on pressure and on light and heavy straight run distillates.

The presence of an unsaturated group is necessary for polymerization to take place. Saturated molecules do not polymerize. The unsaturated groups may be the familiar olefins or other unsaturated hydrocarbons, or the unsaturated radicals CH_1, CH_2 and CH_3, which are postulated by some investigators, say when aromatics are formed from saturated or other hydrocarbons at high temperatures. Here the term condensation is generally used.

The extent of polymerization and condensation depends upon temperature, time, catalysts and pressure. In the cracking process the reaction chamber, especially the bottom of same, of a modern cracking unit is a favorable place for coke to form. Here the temperature is comparatively low, unsaturated products (residu-

[2]Compt. Rend., 86, 991, 1878.
[3]Neft. Khoz. Nos. 11 and 12, 1926.
[4]Z. angew. Chem., (1926) 194-6.
[5]J. Inst. Pet. Tech., 14, 68, 480 (1928).
[6]Ibid., 14, 68, 460, (1928).
[7]Polymerization means the addition of like molecules, and condensation of unlike ones, but the terms are frequently used interchangeably.

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refinery had stills for crude oil distillation, and cracking equipment of another process than the Dubbs

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um) have been formed in quantity, and the oil remains therein a comparatively long time, due to its sluggish flow out of the system, unless it is rapidly withdrawn for the express purpose of diminishing coke production. Many observations have been made on the polymerization of the olefins.

Ipatiev[8] found that ethylene, the most stable mono-olefin, is polymerized at 70 atmospheres in the presence of iron at 325 C. and very rapidly at 380-400 C., a complex mixture of hydrocarbons resulting. Polymerization did not occur in the absence of pressure. Lebedev polymerized allene by heating it in glass at 140 C. Diallyl was very slowly polymerized at 250 C. to a dimeride and a gummy residue. Lebedev and Merezhkovski[9] found that polymers from cyclic monomers readily dissociate and that conjugated double bonded structures polymerized most readily.

Hurd[10] finds that isobutylene gives as much as 20-30 per cent of its weight of an oil at 700 C. in 20 seconds exposure in an empty pyrex tube. He believes secondary reactions are the polymerization ones, thus,

$$CH_3-C(CH_3)=CH_2 \rightarrow CH_2=C=CH_2 + CH_4$$

liquid polymers and their decomposition products.

Polymerization of the olefins is markedly catalyzed by many substances. Gurwitsch[11] polymerized an amylene, probably trimethyl ethylene, by fullers earth at ordinary temperatures, and Hall and Gray polymerized diolefins by hot fullers earth. Gurwitsch found that some unsaturated hydrocarbons will polymerize at ordinary temperatures and without the addition of an agent, e.g. cyclopentadiene will change to dicyclopentadiene. Sulfuric acid, kaolin, aluminum chloride and alumina, and activated carbon speed up polymerization.

Benzene can be produced from acetylene by heating. This is a well known and early case of polymerization. Van Winkle[12] mixed propylene with activated fullers earth and allowed the mixture to stand two months under pressure. Large amounts of polymerized olefins were found. Leslie and Potthoff found that in recracking gas oil that had been once cracked, less gasoline was found after heating at 700 F. than was present in the original oil. In other words, there was more polymerization than decomposition.

Brooks[13] gives cyclobutane an intermediate role in polymerization, in the case of simple olefins. Many experimenters postulate the formation of unsaturated residues, $\vdots CH$, $:CH_2$ and $.CH_3$. Nef, in 1890, insisted upon the occurrence of the methylene radical, CH_3, and built up a structure of theoretical chemistry on his assumption. Bone[14] put forward the formation by dehydrogenation of unsaturated residues $:CH_2$ and $\vdots CH$.

Nellensteyn[15] gives them an important role as does Williams-Gardner[16] and others. Fischer[17] postulated them in his recent work on the formation of aromatics from methane, stating that they condense to aromatics.

Effect of Temperature On Cracking Reactions

The rate of cracking varies as the temperature. It begins to be appreciable around 600-650 F. and becomes commercial at about 750 F. So-called liquid phase processes are operated at about 750 to 1000 F., vapor phase processes at about 1050-1150 F., and gas making processes at about 1300-1700 F. There is, of course, no sharp line of demarcation between so-called vapor-phase and liquid-phase processes.

Even in systems that are operated at a pressure of 750 pounds per square inch, about 60 per cent or more of the oil may be in the vapor phase at 900 F. Critical temperatures are such that as one approaches temperatures of this order most of the oil may be in the vapor phase regardless of the pressure. Of course the higher the pressure the greater the amount of gas in solution.

As the temperature increases, molecular vibration increases and the frequency and violence of impact of the molecules increases; thus, the bonds of groups are broken that make up the complex hydrocarbons molecules and a more stable thermodynamic arrangement results for the particular temperature employed.

When saturated hydrocarbons are cracked either a C-C or a C-H bond breaks. Possibly, the bonding electrons are made to rotate in wider and wider orbits, eventually causing the bond to rupture. When this happens two radicals exist momentarily; under mild cracking conditions they first become stabilized as paraffins and olefins.

Then further reactions are set up involving splitting, polymerization, dehydrogenation, hydrogenation and condensation, so that the net result is the production of both small and large molecules, some as small s hydrogen, and some as large as those in coke. At high enough temperatures hydrocarbons are completely decomposed into their elements. The constitution of the hydrocarbon and its molecular weight are the factors that determine the temperature required to crack it and the nature of the products formed.

Thus isobutylene is more resistive to heat than isobutane, according to Hurd's work, already discussed. Methane is the most stable of all the hydrocarbons. Hexane is more stable than cyclohexane, according to Ipatiev. Aromatic stocks are more refractory than others. Olefins split, hydrogenate and polymerize. Aromatics split, condense and hydrogenate. Polymerization of unsaturates occurs most at relatively low temperatures. Condensation of groups to aromatics occurs at high temperatures. Naphthenes split and dehydrogenate. All this shows the effect of temperature, nature of the hydrocarbon, and size of the molecule.

At the lower commercial cracking temperatures the pressure distillate produced is more paraffinic, and less unsaturated, in that more primary cracking occurs, than at higher temperatures. At the latter temperatures this order is reversed, so that in vapor phase products paraffins may be entirely absent. There is not enough hydrogen to go around. As the temperature is raised the products also become more aromatic, although the nature of the products is also governed by the nature of the charging stock, this influence becoming less pronounced at the higher cracking temperatures.

The rate of cracking approximately doubles for each 18 degrees F. in the range 750-810 F. At high temperatures the gap is probably wider than 18 degrees F. This doubling effect is found in other chemical reactions. It is not an exact rule. The rate of inversion of cane sugar is increased about five times for a 96 F. rise.

Kiss[18] has applied Arrhenm's formula for the variation of reaction rates with temperature,

$$\frac{d \log K}{DT} = \frac{Q_a}{RT^2}$$

where,

K = the constant of the reaction velocity.

T = abs. temperature in degrees Kelvin.

Q_a = heat of activation in gram-calories.

R = the gas constant (1.986 gram-calories.)

They applied this to the primary cracking of paraffin wax; to data presented by Waterman and Perquin[19], and present the expression,

$$\log_{10} K = a - \frac{14770}{T}$$

so that K may be calculated for any temperature.

Bone and Coward[20] found that six hours were required to decompose 98 per cent of ethane exposed to 675 C. At 800 C. there was only required 5 minutes. This follows the general rule of 18 degree F. rise for double the cracking. According to the rule that cracking doubles for each 18 de-

[8]Ber. 44, 2978.
[9]Jour. Russ. Phys. Chem. Soc., 45, 1249, 1913.
[10]Personal communication.
[11]Jour. Russ. Phys. Chem. Soc., 47, 827, 1915.
[12]Jour. Am. Pharm. Ass. 17, 544, 1928.
[13]Jour. Inst. Pet. Tech., 14, 746, 1928.
[14]Trans. Chem. Soc. 93, 1197, 1908.
[15]Jour. Inst. Pet. Tech., June, 1924, p.317.
[16]Fuel in Science and Practice, 10, 430, 1925.
[17]Brenn-Chem., Oct. 1, 1928, p. 309.
[18]Ind. Eng. Chem., 22, 10, 1930.
[19]J. Inst. Pet. Tech., 11, 36, 1925.
[20]Jour. Chem. Soc., 93, 1197, 1908.

gree rise in temperature, and assuming a rate of about 2 per cent per hour at 750 F. the rate should be about 260 per cent at 900 F. Hence oil is in a 900 F. cracking zone only a fraction of the time that it is in the low temperature 750 F. zone. But experiments are not available showing the cracking rate at high temperatures. Probably the rate falls off appreciably and the assumed doubling value does not entirely hold. Furthermore already cracked stock or recycle stock does not crack as readily as virgin stock.

While it is generally stated that cracking becomes appreciable at 600-650 F. and commercial at 750 F., hydrocarbons both split and polymerize at much lower temperatures. Engler[21] cracked amylene by heating it for 11 days at 456 F. and found that a Galician oil (paraffin base) started to decompose at 392 F. However, Mabery boiled a Pennsylvania petroleum distillate for 16 months at 390 F., and Thorpe and Young[22] repeatedly distilled paraffin wax at 491 F. without decomposition.

Polymerization, a concurrent reaction in cracking, takes place at even lower temperatures. Lebedev[23] polymerized allene by heating it at 284 F., and Gurwitsch and many others have polymerized amylene and other unsaturated hydrocarbons with fuller's earth at ordinary temperatures. However, at these low temperatures splitting and polymerization reactions are quite outside the range we include when discussing commercial cracking temperatures.

At the high temperature of cracking and in the tubes and upper part of the chamber of a modern cracking unit, splitting of the molecule takes place, and while polymerization reactions are also speeded up, yet more splitting occurs to the extent that appreciable quantities of light distillates form.

As the oil from cracking tubes enters the reaction chamber and particularly at the lower part of same, temperatures and velocities fall (time increases) and addition reactions increase; coke forms in quantity. One can check this, of course, as is done in many installations by rapidly withdrawing the oil from the chamber or cooling it with colder oil, so that instead of addition reactions proceeding to the point of an abundance of coke, less of the latter forms, and more residuum is produced.

Addition reactions, polymerization and condensation ones, occur at both low and high temperatures. Polymerization of olefins, for instance, is more active at temperatures below commercial cracking temperatures. Here polymerized products tend to split at cracking temperatures. But coke production, condensation to aromatic bodies, occurs at cracking temperatures, and even continues at temperatures high in the range.

Of course splitting reactions with the formation of gasoline also occur in the reaction chamber, for the upper part of same is almost as hot as the oil in the tubes and an interval of time elapses before the vapors escape dephlegmator of a cracking unit, or heavy oil is withdrawn from the chamber. Velocities are lower in the reaction chamber than in the tubes.

In different cracking systems varying amounts of cracking take place in the tubes and in the reaction chamber. The pressure carried on the system has a marked effect on this phase of cracking, for pressure keeps more oil in the liquid phase and it does not flash out of the chamber so quickly. Thus the time is increased.

The gasoline made in the tubes may be a very small proportion of the whole. It is also true that polymerization reactions can occur to produce gasoline, for gaseous molecules or other molecules lighter than gasoline ones can combine to form gasoline molecules, just as molecules can unite to form heavier ones than gasoline.

[21] Ber. 42 (1909) 4620-21.
[22] Pro. Roy. Soc. 19, 379, 1871.
[23] Jour. Soc. Chem. Ind., 1224, 1914.

New Equipment

A. W. Wheaton Brass Works, Newark, N. J., has begun the production of a new ball-bearing swing joint. The ball bearings make the swinging joint practically fractionless and hold the line from parting while repacking the joint. The latter feature, the company says, makes repacking an easy, one-man job and eliminates the necessity of blocking up the line or taking the risk of a pipe falling.

* * *

Silent Automatic Corp., Detroit, Mich., has moved into its new manufacturing plant at 12001 E. Jefferson ave.

* * *

Worthington Pump & Machinery Corp., New York, announces that its California business will be handled through the Worthington Machinery Corp. of California, Ltd., with headquarters at Los Angeles and San Francisco.

* * *

Cincinnati Ball Crank Co. Cincinnati, O., has added two new units to its line of electric grease guns. These include a new Balcrank "E" electric lubricating unit and a Balcrank multiple outlet electric lubricator.

The lubricating unit has a capacity of 25 pounds. Grease passes through fine mesh screen, eliminating foreign material. The motor operates worm gear which forces greases through the seven-foot main hose and two-foot extension hose into the bearing of the motor car. A safety by-pass valve outside the discharge valve prevents building up excessive pressure.

The electric lubricator is designed for use at service stations which have up to four greasing pits. It is made for either a high or low pressure grease line. A feature is that each shot of grease is automatically regulated with a uniform amount of grease sent into each bearing. This device is in addition to the 500 pound capacity central unit that is designed to serve the largest lubritorium in the country.

The Oil Well Supply Co., Pittsburgh, is marketing a cat line sheave attachment for use with the "Oilwell" center pin type crown block. A cast steel carrier for the cat line sheave saddles the I-beam and is bolted to patented "Oilwell" T-slotted slides. The attachment can be quickly mounted on or removed from the crown block. The sheave is 17½ inches outside diameter, bronze bushed and Alemite lubricated. Folder No. 424, describing the center pin type crown block and the cat line sheave attachment can be secured from the company's headquarters or any branch store.

* * *

The Westinghouse Electric and Manufacturing Co., Pittsburgh, announces the publication of Leaflet No. 20442 describing the Combination Sharples Centrifuge and Filter-press Oil Purifier recently placed on the market. The Leaflet contains a detailed description of the construction and manner of operation of the purifier accompanied by several pictures and diagrams.

* * *

The Haynes Stellite Co., of Kokomo, Ind., has placed on the market a manganese-chrome-iron welding rod called Hascrome. This is a self-hardening alloy, designed primarily for building up badly worn parts preparatory to surfacing them with Haynes Stellite, which is also supplied in the form of welding rod. The cost of Hascrome is materially less than that of Haynes Stellite.

The oxy-acetylene process is considered best for the application of Hascrome, since the hardness of the deposited metal can be controlled by the amount of excess acetylene used in the welding flame, as well as by the rate of cooling. The greater the excess of acetylene in the flame and the slower the cooling rate, the harder the deposit will be. When quenched, the metal becomes softer and tougher. Hascrome is applied to steel without

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* * *

"Texrope Drives" as used in the oil fields on drills, hoists, pumps, compressors and other oil field machinery, and also as used in other industries, are described and illustrated in a new catalogue published by the Allis-Chalmers Mfg. Co., Milwaukee.

* * *

The Maintenance Engineering Corp., Houston, is representing the Edward Valve & Mfg. Co. in the El Paso territory, which includes southern New Mexico and western Texas.

* * *

Ernest Holmes Co., Chattanooga, Tenn., is making the Holmes rotary lift in five models, consisting of two size hydraulic plungers and three lifting platforms. This lift is used in conjunction with the Holmes universal auto lift at service stations.

The Holmes lift is self-contained and does not require outside piping, valves or exterior oil tanks. Each model is equipped with a special hydraulic check which controls the speed of the lift.

* * *

A. Y. McDonald Mfg. Co., Dubuque, Ia., anticipates the usual first-of-the-year replacement or expansion programs of oil companies by putting out a leaflet on various oil marketing devices it makes.

The McDonald expansion relief gate valve is described as preventing leaks at gaskets and joints which are caused by excessive expansion pressure.

A new loading line valve meets the need for a self-closing truck tank loading valve. It is equipped with a special dash pot to overcome the difficulty of closing with a bang, as many self-closing valves do. Special composition disc seating on accurately machined seat insures against leakage, the leaflet says.

Other devices described include internal safety check valves to be installed inside storage tanks to prevent storage losses; nozzles, fill boxes and caps, truck tank buckets and delivery cans, couplings, bushings and steel hose.

* * *

The Linde Air Products Co., New York, presents in a 77-page booklet facts pertinent to and advantages of oxy-acetylene process for the fabrication of steel and wrought-iron piping systems for all purposes. The book is entitled "Oxwelded Construction for Modern Piping Services." It has eight chapters, the first three of which are general, telling of the development of the oxy-acetylene process and how to insure successful results. The remaining five chapters tell of the particular fields of piping construction, including overland pipe lines, power and high-pressure steam piping, welded industrial and process piping, etc.

Accident and Fire Prevention Are Inseparable at Gasoline Plants

TULSA, Feb. 5

IN THE natural gasoline industry accident prevention is inseparably related to fire prevention. Although every hazard is not necessarily a fire hazard, every fire hazard is an accident hazard.

Such are conclusions of G. B. Shea in "Safety at Natural Gasoline Plants," Technical Paper 462 of the U. S. Bureau of Mines, Department of Commerce. The paper covers safety from an engineering lay-out and design standpoint as well as personnel.

In the selection of the site, such points as the topography, character of the soil, atmospheric conditions, possibilities of present and future development, area, and cost are taken up by Mr. Shea. A particularly desirable site, he says, is a slightly sloping ridge or elevation. Such a location permits of advantageous placing of the more dangerous equipment, as well as providing for the drainage.

Firm soils, of good bearing power, and well located above top water are the best for the location of the plant. Although the operator can not be expected to exercise much control over the weather, Mr. Shea says that plants should not be located in fog belts, or in low areas where heavy fog settles while the rest of the atmosphere is clear, as this would make for a concentration of inflammable vapors. Preferably the plant should be exposed to the prevailing winds in all directions.

The location should be out of the way of development as much as possible, he says. Drilling wells, and wells pumping on the beam present fire hazards which should be avoided as much as conditions in the field will permit. A well out of control might spray the plant with crude oil, which would create a condition of the utmost hazard. Proximity to main travelled highways, or railroad lines is also undesirable, as the possibilities of engine back fires and sparks is an additional hazard. The site should be large enough to provide for a well-spaced arrangement of the equipment. Under congested conditions, a fire in one part of a plant might easily destroy the entire plant.

In the arrangement of equipment Mr. Shea says that a proper place should be provided for every combustible substance so that they will be safely removed from every source of ignition. This is best accomplished, he says, by arranging progressively the sources of ignition and combustion so that the most dangerous is farthest removed or isolated from the most combustible, the next dangerous in a correspondingly closer relation, and so on.

The boilers should be placed on high ground away from the main plant. Thus the danger from heavy vapors settling around the boiler is precluded, and the danger of setting fire to spreading oil or gasoline from a leak is greatly reduced. The gasoline storage tanks should be on the far side of a hill, or at least on the far side of the plant from the boilers, he says. Boilers should be a minimum of 100 feet from the plant.

Absorbers, preheaters, mist extractors, strippers, oil-to-oil heat exchangers, dephlegmators, condensers and accumulators, with their piping and connections should be grouped as closely as safety will permit, he says, for the advantage of closer operating attention and inspection. Office, warehouse and laboratory should be outside of the danger zone, says Mr. Shea, and they should be so located as to make it unnecessary to drive or walk through the plant yard to reach them.

Safety traps, he says, should be installed in drain lines to liberate any gas that might form therein. The drainage pits should be covered and the vapors vented to a safe place.

The trend in design is toward all steel buildings. Many plants, says Mr. Shea, are housed in buildings with a steel frame construction, covered with a corrugated iron sheathing with a continuous row of steel sash around it. Wide doors are provided in front and back of each compressor unit, or opposite the aisles between the units, and a monitor on the ridge which runs the entire length of the building, is a favored design from the safety standpoint, he says.

As the roof trusses are often used to suspend hoists and blocks for lifting cylinders, etc., they should be designed to take care of such loads. At large stations a monorail is frequently provided to take care of such work.

Particular attention to ventilation also should be paid, he says. Good ventilation means a great deal in the efficiency and alertness of plant workmen, and results naturally in their closer attention to the job and a lessening of the danger of accident to themselves or the equipment. Doors and windows alone should not be depended on as a means of ventilating the buildings. Rather, it should be obtained by means of a controlled system, that will establish a continuous current of air through the building, regardless of whether the doors and windows are open.

The spacing and arrangement of compressor units with reference to duplicate units and auxiliary equipment are details that affect safe operation, says Mr. Shea. Wide passageways between machinery in motion greatly reduce the danger of accidents.

The interests of safety are best served if the ratio between engine speed and the amount of cooling water circulated is kept at such a point that the differential temperatures between the water at the intake and outlet of the water jackets is maintained at 20 degrees F. or less. This temperature differentials, says Mr. Shea, reduces the danger from strains on the cylinder castings which are caused by temperature differentials at the top and bottom of the cylinder.

It is recommended by Mr. Shea that

To Build Gasoline Plant At Oklahoma City

BARTLESVILLE, Feb. 6.—Phillips Petroleum Co. will build a gasoline plant in the southern part of the Oklahoma City field. The plant is to be a 50,000,000-foot absorption plant for well pressure operation. Its location is to be in the NW NW SW of Sec. 32-11-2W.

The plant will draw gas from 4600 acres of potential and producing acreage owned and under contract. Initial construction will be with a view to later enlargement as the company expects the gas supply to be three times as great before the close of the year.

Plans for the plant are complete and equipment has been bought. It is expected that the installation will be ready for operation within 60 days if weather conditions are favorable.

The new plant will be the 45th operated by Phillips. Last year the company produced 220,000,000 gallons of natural gasoline, an average of 600,000 gallons per day. This was an increase of 17 per cent over 1928.

the gas which passes through the cylinder relief valves be vented outside of the building and above the eaves.

There is an outstanding need for standardization of gas engine and compressor guards, says he. The suggestion is made that the manufacturers of compressors furnish standard protective equipment as an integral part of the compressor units they sell.

Mr. Shea says that too great stress cannot be placed on the need of considering fire fighting equipment as part of the operating equipment, and the importance of installing it before the gas is turned into the plant. A careful study of conditions results in equipment being properly centralized and distributed, which greatly speeds up fire fighting.

Considerable space is given to safe practices in the construction of the plants. Particular stress is placed on the selection of experienced, capable men for the more hazardous parts of the job of erection, as well as the design of scaffolds, ladders, rigging, etc.

The concluding part of the pamphlet deals with safety rules to be observed by the plant workmen in the performance of their duties. The use of all safety and precautionary devices and appliances is stressed, as is the distribution of warning and educational literature to the men by the plant owners.

Safe practices to be observed in the performance of all the tasks necessary to the operation of the plant are set forth in detail by Mr. Shea.

In conclusion he says, "Under the most favorable conditions the extraction of gasoline from natural gas is full of serious and minor hazards, and it is exceedingly important that plants be designed and operated under the supervision of competent and careful engineers and foreman who fully realize their responsibility for the safety of the men and who are able to secure their full co-operation. The men in return should realize the moral significance of thoughtfulness and attention in order that the safeguards which experience has provided are not nullified. A knowledge of the plant and the causes of the accidents enable operators to anticipate in some measure the possibility of such accidents and to exercise a greater control over their occurrence.

A six-inch electric welded pipe line 27 miles long is under construction by the Bartex Pipe Line Co., subsidiary of the Phillips Petroleum Co., from the Gray county fields to Borger, in the Texas Panhandle. The Phillips company has a refinery at the latter point. The line will be used both for shipments of natural gasoline from the Phillips plants in the Gray county fields and for crude oil. Some eight miles of gathering lines are being installed. The work is being done by the Kelly-Dempsey contracting company.

M. G. Benedict
who has become general manager of HyVis Oil Co. of Canada, Ltd., Toronto

Heads Canadian Subsidiary Of Fred G. Clark Co.

CLEVELAND, Feb. 6.—An association of 10 years with the Fred G. Clark Co., manufacturer of HyVis motor oil here, has resulted for M. G. Benedict in his appointment as general manager of the HyVis Oil Co. of Canada, Ltd., with headquarters at Toronto.

Mr. Benedict will have charge of sales and distribution of the complete line of lubricating oils and greases manufactured by the company, as well as its HyVis motor oil, which the company calls a pure Pennsylvania motor oil. Mr. Benedict is well known among marketers and jobbers in central territory, according to C. D. Wood, Jr., sales promotion manager at Cleveland.

300-Barrel Cracking Unit Operating in Belgium

CLEVELAND, Feb. 7

POSSIBILITIES that a very small-sized cracking unit may be profitably adapted to use in a refinery where the quantity of cracking stock produced is small, are indicated by the operations of a Dubbs cracking unit with a rated charging capacity of 300 barrels a day which was recently completed in Belgium.

Cracking has usually been considered a large-scale operation. Refiners with very small plants have hesitated to install cracking equipment because the practicability and economy of such operation had never been demonstrated, according to Paul Truesdell, of the Universal Oil Products Co., Chicago.

The plant in Belgium has been in operation only about two months but is delivering the goods as specified and has been accepted as satisfactory by the licensee, the Belgian Cracking Co. at Langerbrugge. The unit was designed to crack tar from low temperature carbonization of coal to make gasoline. However, it was found that the tar would not be available for several months. The plant then showed its versatility by operating successfully on fuel oil from Roumanian crude. This oil is of 17.6 A.P.I. gravity.

The furnace of this unit has some features different from the standard Dubbs furnace and is described as follows:

It is of radiant heat design, containing 49 tubes, 20 feet long, 3-inch outside diameter and having a wall thickness of 5/16 inch. These tubes give a total of 720 square feet of heating surface. Thirty-three of the tubes are in the radiant heat section and 16 in the convection section. The furnace is side-fired through three firing tunnels and has a Bigelow-Liptak flat suspended arch.

Oil is the fuel used to bring the unit on stream. When in full operation, the gas generated in the cracking operation is sufficient to fire the furnace. Air for combustion is preheated by being drawn in through air tunnels passing under the floor of the furnace. The air inlets at the burners are kept closed, thereby eliminating the entrance of excess cold air.

The reaction chamber is a welded vessel made by A. O. Smith Corp. It is 7 feet in diameter and 30 feet high with walls 3 inches thick. It is tested to 400 pounds working pressure, but is operating at only about 225 pounds pressure.

Results obtained by this small unit are given in the report of C. H. Alberding, Dubbs engineers in charge of its construction, as follows:

"Between 12 and 15 per cent of residue is made at the beginning of the run, which is used as fuel oil at the boilers and during the fire-to-stream periods rather than fresh charging stock. This method gives a 48-hour on stream period and also increases the gasoline production per month. It will be comparatively easy to obtain 72-hour cycles as the clean-out goes quite well and in the last run the unit was brought on stream in 3 hours and 10 minutes.

"Pressure distillate production is from 62 to 64 per cent by volume in the tanks and this contains 80 to 82 per cent 437 end point gasoline. Four thirty-seven end point gasoline figured on the raw oil has been around 51 per cent. Operating pressure has been maintained at 225 pounds per square inch."

"Work Factor" Used in Buying Lubricants By the Navy Department

By Arch L. Foster
N. P. N. STAFF WRITER

CLEVELAND

IN DEVELOPING a method of specifying the properties of lubricants which would enable the Navy Department to obtain satisfactory and dependable oils for special uses the Navy Bureau of Engineering has evolved a well-developed plan employing what they term a "work factor." This is used for evaluating the relative efficiency of lubricants in service.

This factor is based on the results of service tests in the laboratory or on shipboard, and is intended to represent the relative resistance of the lubricant to damage or deterioration under actual service conditions.

This "work factor" idea is not new, but is a more complete form of an old effort to properly measure the value of oils in service. As far back as 1866 oils were tested by the Navy in an endurance machine, which consisted of a specified journal and bearing equipped for applying pressure in definite amount, and for feeding oil to the bearing under regulated conditions while the journal was rotated at a predetermined speed.

A refinement of this machine was used several years later wherein the frictional pull on the journal was measured by a dynamometer, and a relative value expression for the lubricants tested was obtained by dividing the product of this "pull" times the rotational speed of the journal in feet per unit of time by the weight of lubricant consumed during the same time. In this manner the Navy found that a better estimation of the values of oils for their purposes could be made than by the more conventional way of specifying only the physical and chemical characteristics as determined by the ordinary laboratory tests.

The high regard which the navy department holds towards this method of purchasing its lubricating oil requirements can be seen from the statement recently made by Commander M. C. Bowman, engineer in charge of the supply division of the navy. "As a purely business proposition the purchase of oils by specifications is not a success,"* he stated.

*"Lubricating Oil For The Navy," Comdr. M. C. Bowman, Jour. Am. Soc. Naval Eng'rs., Vol. XLI, No. 4, November, 1929, pages 656-675.

However, it could well be pointed out that conditions under which lubricating oils are used in naval service are unusually severe and that absolute reliability in functioning under critical conditions is all-essential. Also, the navy has a technically and practically trained personnel for studying lubricating oil requirements and guiding the department's purchases which could not be duplicated in many cases.

> The refining branch of the oil industry has heard something of the "work factor" method of evaluating the relative efficiency of lubricating oils in service, as a guide in purchasing, which was developed and is being used by the Navy Department. This system for rating lubricants is now being used by 26 other governmental agencies in making purchases. NATIONAL PETROLEUM NEWS offers the accompanying article as a description of the "work factor" system and how it is being used.

The word "specifications" as used in the above statement refers to the requirements specified as to results of the ordinary laboratory tests of viscosity, color, emulsion test, pour test, carbon residue, etc., usually employed by purchasers in outlining the quality of the product desired. Because of the unusual nature of the service required, a great deal of study and experiment has been devoted to the subject by the Navy Engineering staff, with the result that they have arrived at what they believe is a more dependable basis for the evaluation and purchase of lubricants.

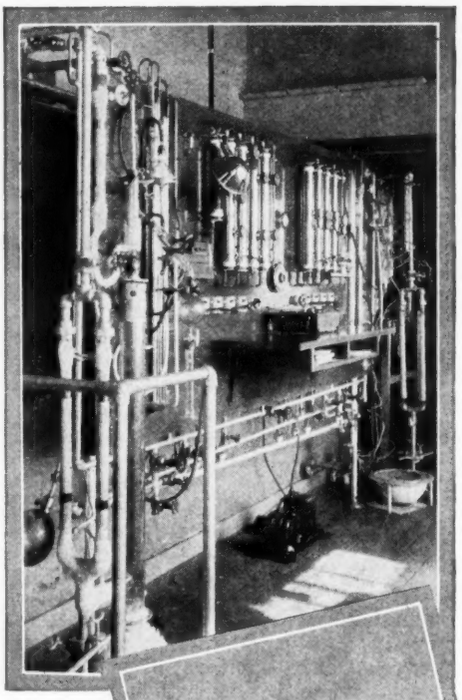
The plan at present followed is to have samples of all oils which the manufacturer wishes to offer for sale to the Navy submitted for testing. Laboratory tests are made, the particular tests in each instance depending of course on the type of oil. In addition to the regular tests required by Federal Master Specification No. 2d, determinations are made of SO_3 as sulphonates, unsaturated compounds, ash, and evaporation loss, employing methods developed by the Engineering Experiment Station. In some cases, such as compounded steam cylinder and marine engine oils, other tests are made, compounded oils being tested for fixed oils.

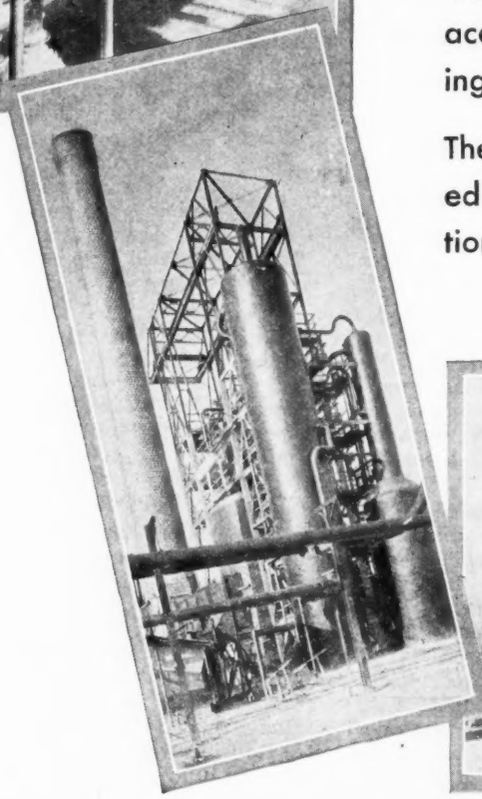
The test methods used for these special determinations are as given below.

(*a*) *SO_3 as sulphonates:* Weigh into an 800 c. c. Erlenmeyer flask 150 grams of the oil to be tested; add to the oil a mixture of 50 c. c. of concentrated hydrochloric acid and 50 c. c. of ethyl ether (cool the acid when pouring in the ether). Heat the mixture of oil and ether acid on a sand bath in a hood sufficient to keep it continuously boiling for 1½ hours and shake the contents of the flask occasionally. After the boiling period, pour the contents of the flask into a separatory funnel, separate off the acid layer, and evaporate it to a volume of a few cubic centimeters; dilute the evaporated acid solution to four times its volume with distilled water, filter, and add a drop of 10 per cent barium-chloride solution. The presence of sulphonates will be detected by the precipitation of barium sulphate. All reagents must be carefully tested for the possible presence of sulphonates before use.

(*b*) *Unsaturated compounds:* Measure out 10 c. c. of the oil to be tested in a small 25 c. c. graduated cylinder; add 5 c. c. of kerosene free from unsaturated compounds; mix, cool in ice water, and add from a graduated burette 10 c. c. of concentrated chemically pure sulphuric acid of 1.84 specific gravity; again cool in ice water. After standing for about 10 minutes in the ice water the cylinder is removed, tightly stoppered, and shaken violently for a few seconds; again place in ice water until thoroughly cooled; remove and shake violently for 1 minute. After standing a few minutes the cork is removed. and the cylinder is placed in a special laboratory centrifuge and revolved until the oil becomes clear and no longer increases in volume. It is then allowed to stand at room tem-

EXPERIENCE





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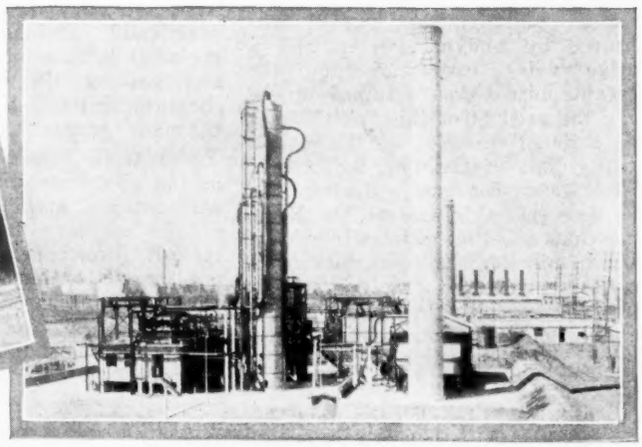

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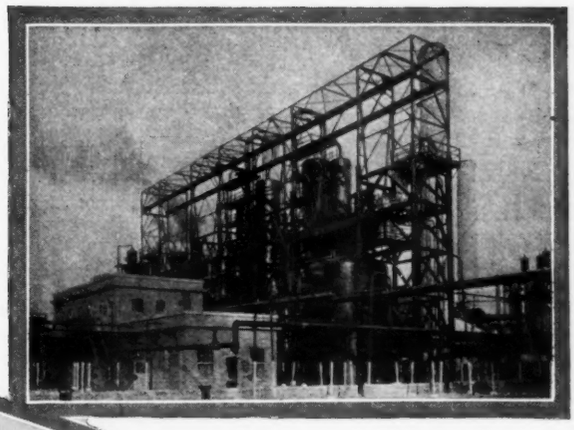
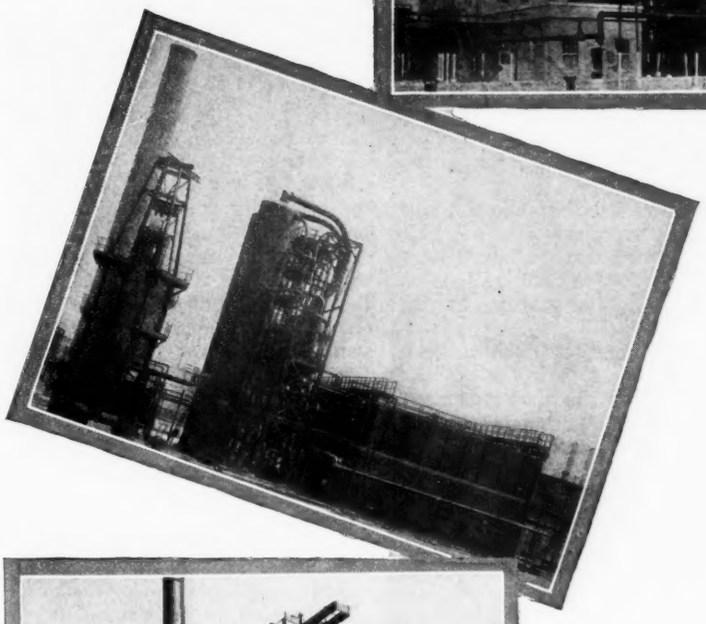
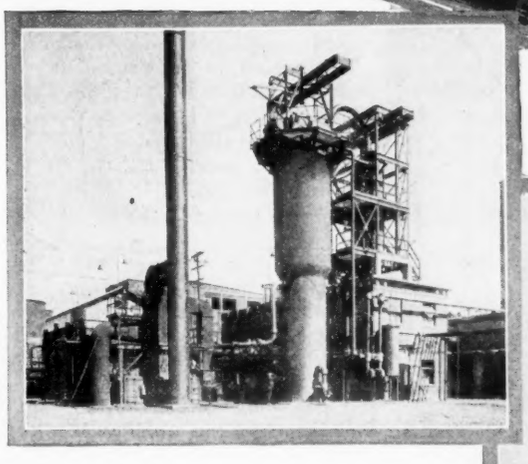
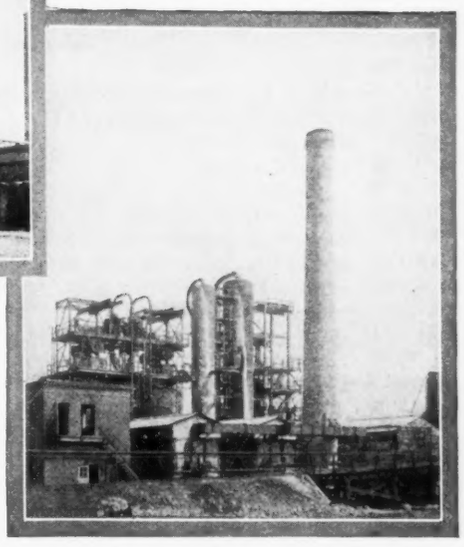








The following Companies are some of those who have purchased BADGER Equipment:

The Texas Company

Tide Water Oil Co.

Sinclair Refining Co.

Anglo-Persian Oil Co. Ltd.

Emlenton Refining Co.

Shell Petroleum Corp.

Phillips Petroleum Co.

Standard Oil Co. of N. J.

Empire Oil & Refining Co.

Texas Pacific Coal & Oil Co.

Associated Oil Co.

Pennzoil Company

Independent Refining Co.

Gulf Refining Co.

Tidal Refining Co.

Continental Oil Co.

Anglo-Mexican Petroleum Co. Ltd.

Cities Service Refining Co.

Barnsdall Corporation

Beacon Oil Company

Pierce Petroleum Corp.

Magnolia Petroleum Co. of Texas

New Orleans Refining Co.

Skelly Oil Co.

General Petroleum Corp.

Shell Oil Company

Freedom Oil Works Co.

Vacuum Oil Company

Richfield Oil Co.

Humble Oil & Refining Co.

SONS COMPANY

TULSA HOUSTON BOSTON

perature until the total contents register 25 c. c. The volume of the oil absorbed by the sulphuric acid is then read off and is reported as percentage of unsaturated compounds.

(*c*) *Ash.*—In general the ash determination of lubricating oil is conducted on the carbon residue remaining after the carbon-residue test; the crucible is placed in an electric combustion furnace, the carbon is burned off, the crucible cooled in a desiccator and weighed; the increase in weight of the crucible is calculated for per cent of ash in the original 10-gram sample of oil. When the carbon-residue test is not conducted on an oil or when it is found necessary to more accurately determine the ash content, the following method is used:

Weigh into a tared platinum dish of approximately 50 c. c. capacity 10 grams of the oil to be tested. Heat gently by means of a Bunsen burner, using a small gas flame in a hood with a slight draft until the oil may be ignited at the surface. Remove the burner and allow the oil to burn at the surface until combustion ceases. Then place the dish in an electric combustion furnace, burn off all the carbon, cool the dish in a desiccator, weigh, and calculate the per cent of ash.

(*d*) *Evaporation loss.*—Test for evaporation loss is conducted as follows:

Five grams of the oil to be tested are weighed into a brass cup of the following dimensions: Outside diameter, 1 31/32 inches; inside diameter, 1 29/32 inches; outside height, 1 3/16 inches; thickness of metal, 1/32 inch. The cup with its contents is heated in a constant-temperature. Frease electric oven for 7 hours at 235 (—5) degrees Fahrenheit. The oven is equipped with a motor-driven, revolving shelf, the driving motor being located outside the oven; the shelf is 9 inches in diameter and makes 12 revolutions per minute. The brass cups with their contents are placed on the shelf and the temperature is taken by a thermometer placed just above the tops of the cups. At the end of 7 hours the cups are removed from the oven, cooled to room temperature in a desiccator, and weighed, the loss in weight being calculated as per cent evaporation loss.

Oils which pass these preliminary tests satisfactorily are further subjected to practical and service tests, the practical test being carried out in the Experiment Station laboratory, the service test under actual working conditions aboard ship. Transformer oils, though not lubricants, are of such nature that they are best tested in a lubricating oil laboratory, and are given a break-down test. Marine engine oils are tested by the standard wick-feed method as given in Bureau of Mines Technical paper 323B; the transformer break-down test is made by the A.S.T.M. Method D117-27.

Forced feed and motor cylinder oils undergo an endurance test over a period of 100 hours, in an apparatus consisting of a journal six inches long and 3 13/16 inches diameter, which revolves at a speed of 2000 revolutions per minute, under a bearing pressure of 150 pounds per square inch. Oil is fed to the bearing at 15 pounds gauge pressure, circulating continuously, and hourly determinations are made of bearing and lubricant temperatures, and of the coefficient of friction. The oil is inspected after the test to determine the change taking place during the test.

Oils not rejected because of the showing in the practical tests are subjected to a service test on board ship, which requires 200 to 100 gallons of oil, depending on the nature of the service.

The calculation of the "work values", and from that the "work factors" of the oils is based on the showings made by the oils in the 100-hour practical tests. Factors are derived from the laboratory tests on both the new and used oils for viscosity, neutralization number, precipitation number, and carbon residue.

Viscosities of the new and used oil are determined at three temperatures, 100 F., 130 F., and 210 F.; a work value is calculated for each temperature by the following formula;

$$\text{Work Value} = 1.00 - \frac{\dfrac{\text{Final viscosity} - \text{initial viscosity}}{\text{Initial viscosity}}}{C}$$

where C = 0.20 for regular motor cylinder oils (Class 2), and
C = 0.25 for aviation motor cylinder oils (Class 3).

Corresponding work values for the increase in neutralization number, precipitation number, and carbon residue are calculated from test data by means of the following formulae, which provide for two ratings on carbon residue, one on the initial carbon residue content, (Formula 2), and a second based on the carbon residue after the endurance test, (Formula 3).

$$\text{(Formula 2)} \quad \frac{\text{Initial rejection point} - \text{initial content}}{\text{Initial rejection point}} = \text{Work value No. 1}$$

$$\text{(Formula 3)} \quad \frac{\text{Final rejection point} - \text{final content}}{\text{Final rejection point} - \text{initial content}} = \text{Work value No. 2}$$

"One rating only will be given for neutralization number and precipitation number based on the initial content, which always must be 0.10 or less and zero, respectively, and the increase in content during the endurance test. Formula 4, as follows, will be used:

$$\text{(Formula 4)} \quad \frac{\text{Final rejection point} - \text{final content}}{\text{Final rejection point} - \text{initial content}} = \text{Work value}"$$

The following table contains the data on the maximum permissible content of new oils for the three tests, and the maximum and minimum used oil content. Any oil may be rejected regardless of the results of other tests which shows a content greater than the limits laid down in the table. (Symbol numbers under "carbon residue" refer to subclasses).

Factor	Maximum content initially Acceptable	Initial rejection point	Final rejection point
Neutralization number	0.10	0.11	1.01
Precipitation number	None	.05	1.01
Carbon residue, 2110, 2135, 2190, per cent	.50	.55	1.05
Carbon residue, 2250, 2310 per cent	1.00	1.05	2.05
Carbon residue, 2080, 3100, 3120 per cent	1.50	1.55	3.05

After all the calculations of work values have been made, the values for viscosity are averaged, as well as those for carbon residue. The final values for viscosity, neutralization number, precipitation number, and carbon residue are then averaged, which average work value is registered as the "work factor" for that particular brand of oil. Such a calculation may be represented as follows:

(Figures inserted are for illustration, and are not actual results obtained in laboratory.)

Viscosity	79.00
Neutralization Number	92.16
Precipitation Number	62.44
Carbon Residue	68.10
Total	301.70
Average work value (work factor)	75.425

Oils which do not exceed any of the rejection points indicated in the table given above, and show a work factor not lower than 0.50 are then placed on the Department's Acceptable List of Approved Materials, from which list oils are purchased for the Navy's use. The work factor so arrived at stands without change until such time as new samples may be submitted, or it is thought that the quality of oil being furnished is below that represented by the factor in use, when new determinations may be made and a new factor calculated.

This work factor is used to determine the "Service Cost Per Gallon" by dividing the cost price per gallon by the factor. In awarding contracts the lowest service cost per gallon is considered the low bidder. According to this plan the successful bidder is not necessarily the marketer offering oil at the lowest price per gallon. For instance, an oil quoted at 20 cents per

unit with a factor of .755 shows a service cost of approximately 25.5 cents while one quoted at 24 cents with a factor of .95 gives a service cost of only 25.3 cents and would be considered the low bid.

Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

43180.—**Automobile oils**, Santiago, Chile, purchase.

43181.—**Pale lubricating oils**, Santiago, Chile, purchase.

43211.—**Kerosene and paraffin**, Hamburg, Germany, agency.

43255.—**Lubricating and fuel oils**, Turin, Italy, agency.

43266.—**Gasoline, kerosene, and lubricating oils**, Tangier, Morocco, agency.

43267.—**Paraffin and ozocerite**, Riga, Latvia, purchase.

43273.—**Gasoline and automobile lubricants**, Tegucigalpa, Honduras, agency.

43284.—**Gasoline**, Hamburg, Germany, agency.

43300.—**Gasoline and lubricating oils**, Montreal Canada, purchase and agency.

Shell Builds Toledo Water Terminal

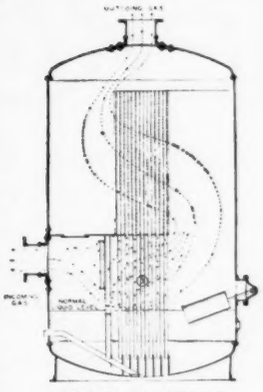
ST. LOUIS, Feb. 6.—The Shell Petroleum Corp. has under construction on the Maumee river at Toledo, Ohio, a modern marine bulk terminal for supplying Toledo territory with gasoline from the company's East Chicago refinery to Toledo via water, thence for further distribution via rail throughout the territory.

The Toledo terminal, which will cost approximately $425,000, is one of a number of such projects on the Great Lakes under construction or proposed by Shell. Shell engineers designed the various buildings and much of the equipment.

The Toledo bulk terminal is on an eleven-acre tract. This property extends back from the river and is meant to supplement an existing bulk depot which has been in operation for the past two years. Between the river and the present bulk depot three large storage tanks of 39,500-barrel capacity are now under construction.

WASHINGTON—Venezuela's total crude production for the six months ended June was in excess of 67,000,000 barrels, a gain of 22,000,000 barrels over the corresponding period of 1928.

Billions of Bubbles



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See the white-paper test with the glassed-in model, on exhibition at Oil Equipment and Engineering Exposition, Los Angeles, March 16-23.

Bulletin No. 6 exp'ains fully.

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Scale Wax Cooling Drums
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Complete Wax Plants designed and built
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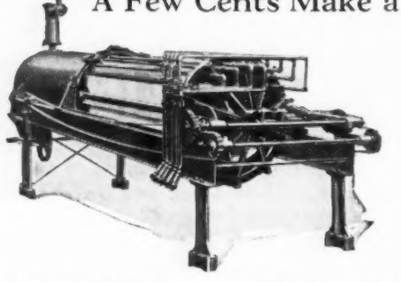

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New Patents

Prepared by R. E. Burnham, patent and trademark attorney, Continental Trust Building, Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.

December 10, 1929

REFINING

Process for treating lubricating stock—Albert H. Ackerman, Chicago, Ill., assignor to Catalytic Chemical Co. Filed Dec. 14, 1925. No. 1,742,021.

Method of obtaining hydrocarbons of low boiling points from hydrocarbons of high boiling points—Paul Danckwardt, La Junta, Colo. Filed April 23, 1927. No. 1,742,165.

PRODUCTION

Pump—Richard C. Mason, Tulsa, Okla. Filed Dec. 5, 1927. No. 1,741,244.

Oil-well flowing apparatus—Elmer A. Watts, Tulsa, Okla. Filed July 14, 1927. No. 1,741,489.

Sucker-rod-joint lock—Samuel L. Jolley, Norwalk, Cal. Filed March 7, 1927. No. 1,741,720.

Oil-well pump—Wayne J. Blankenship, Los Angeles, Cal. Filed Oct. 4, 1927. No. 1,741,913.

MISCELLANEOUS

Oil-purifying apparatus (used oil)—Lee H. Clark, Rosemont, Pa., assignor to Sharples Special Co., Philadelphia, Pa. Filed May 12, 1925. No. 1,741,756.

Oil-storage-tank gauge—Braman C. Rinehart, Chicago, Ill. Filed Nov. 21, 1927. No. 1,741,792.

December 24, 1929

REFINING

Refining of hydrocarbon oils—Robert H. Gardner and Howard G. Hodge, Coffeyville, Kans., assignors to Sinclair Refining Co., New York, N. Y. Filed July 13, 1926. No. 1,740,584.

Refining of hydrocarbon oils—Harry L. Pelzer, Highland, Ind., assignor to Sinclair Refining Co., New York, N. Y. Filed June 11, 1927. No. 1,740,625.

Apparatus and process of treating hydrocarbon oils—Charles J. Greenstreet, New York, N. Y., assignor to Gasoline Corporation. Filed Aug. 4, 1917. No. 1,740,691.

Art of conversion of hydrocarbon oils—Edward E. Bartels, Whiting, Ind., assignor to Standard Oil Co. of Indiana. Filed Nov. 29, 1926. No. 1,741,045.

PRODUCTION

Rotary bailer—Orroin C. Blakeslee, Compton, Cal. Filed Sept. 30, 1924. No. 1,740,449.

Automatic fluid-pressure pump—Philip Subkow, Los Angeles, Cal., assignor to Union Oil Co., same place. Filed Jan. 9, 1929. No. 1,740,793.

Air or gas lift for fluids—Leslie B. Clifford, Texarkana, Tex. Filed May 13, 1927. No. 1,740,807.

Apparatus for lifting viscous fluids—Alexander D. Kneuper, Los Angeles, Cal. Filed July 30, 1928. No. 1,740,821.

Underreamer—William B. Nichols, Graham, Tex. Filed Jan. 4, 1928. No. 1,740,829.

Packing-sleeve for overshots—Edward H. Williams, Crafton, Pa., assignor to National Supply Co., Toledo, Ohio. Filed Sept. 21, 1928. No. 1,740,849.

Rigger—Charles B. and Edward R. Polhemus, San Jose, Cal.; said Edward R. Polhemus assignor to said Charles B. Polhemus. Filed Jan. 26, 1927. No. 1,740,874.

Well-drilling tool—Boyd K. Appleman, Beaumont, Tex. Filed Oct. 19, 1927. No. 1,740,915.

Pumping system—William C. Parrish, Port Arthur, Tex. Filed Sept. 28, 1922. No. 1,741,117.

January 21, 1930

REFINING

Process for converting hydrocarbon oils—Carbon P. Dubbs, Wilmette, and Jacque C. Morrell, Chicago, Ill., assignors to Universal Oil Products Co., same place. Filed May 29, 1922. No. 1,744,109.

Apparatus for vapor fractionation—Jacque C. Morrell, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed May 16, 1927. No. 1,744,134.

Process and apparatus for fractional distillation—Maurice B. Cooke, Plainfield, N. J., assignor to Atlantic Refining Co., Philadelphia, Pa. Filed Aug. 27, 1926. No. 1,744,261.

Visiting Around the Refineries

By Arch L. Foster

National Petroleum News

THE Conewango Refining Co. of Warren, Pa., has completed the installation of its second Nichols-Herreshoff earth burner, 10-hearth, 90-ton capacity burner, and has a third one, of the same capacity, on order to be installed within a month or so. The first burner installed by this company was an 8-hearth, 65-ton capacity, and proved inadequate to handle the amount of clay used by this company in the manufacture of Pennsylvania lubricants.

Another interesting feature of this plant that is nearing completion is a complete belt-conveyor system to handle the fullers earth throughout the plant. Under the new set-up the earth is dumped from the car on the track onto the belt conveyor and carried to the storage bins at the burner house. After burning other belt lines carry it to the three filter houses where it may be dumped into storage bins or directly into the filter cylinders by auxiliary conveyors.

The belt system for carrying the used earth back to the burners for revivification is not yet entirely complete, but is under construction. When complete the earth used in the plant will be carried by conveyors through the entire cycle without being handled manually at any point after leaving the gondola in which it arrives in the plant, until it is discharged as spent earth.

W. L. Gettings, the new production manager of the plant says that in unloading a carload of earth, two men can do in 2½ hours the amount of work that required 72 man-hours of labor heretofore under the old hand system of unloading.

The men in the plant looked askance and rather unkindly at the new system when first installed, but since they discovered that just as much plant work remains to be done as before, and that no one has been "fired" for lack of work, they are quite proud of the new system.

* * *

G. B. SHEA, until recently safety engineer for the U. S. Bureau of Mines at the San Francisco field office, has been transferred to the Washington office of the Petroleum Division of the bureau, as assistant chief of that division. He is well known especially among Pacific Coast oil and safety men for his publications on safety equipment and practice and his studies on this line in the Far West. It is not known if Mr. Shea has any intentions to emulate the noted Lochinvar "come out of the west," as he didn't bring any horse along; but he did bring a Nash coupe or roadster, so——?

* * *

COL. GEORGE A. BURRELL, of the engineering firm of Burrell-Mase, Pittsburgh, Pa., left for Russia on Feb. 1 under special contract with the Soviet Government to study the problem of rehabilitation of the present natural gasoline plants and refinery vapor recovery plants in that country. He is to design new plants for the Russian petroleum and natural gasoline industry. Col. Burrell's first trip will require several months, and he is expected to return to this country sometime in the late spring, according to present plans.

R. L. MAREK, of the Bartlesville, Okla., Petroleum Experiment Station of the Bureau of Mines, has been appointed to the position of safety engineer at the San Francisco station, succeeding G. B. Shea, who has been transferred to Washington to aid and abet Harry Fowler in piloting the destinies of the Petroleum Division. Marek is a Longhorn, both by birth and by physical conformation and should prove a good man to carry on the work begun and well developed by his predecessors, Mr. Shea and H. C. Miller.

* * *

H. R. LEWIS, general manager of Conewango Refining Co., Warren, Pa., left Warren recently on an extended vacation trip to Bermuda and intermediate points. This is the first vacation Mr. Lewis has had since he took charge of that company some three years ago, and we sincerely hope that he will rest and recuperate plenty during the two or more months he is to be away from the plant.

The Conewango plant has been practically rebuilt since Mr. Lewis took control, and is working regularly to capacity; it appears to us that Mr. Lewis has amply earned the right to rest and play awhile.

* * *

DR. T. A. BOYD, General Motors Research Laboratories, Chairman of the cooperative committee which is undertaking the problem of developing a standard detonation testing method, reports that all cooperating laboratories have decided on the test conditions and method of procedure to be followed in making the preliminary sets of tests with the new engine to be used for these tests. This engine is the variable compression, single cylinder engine designed and built by the Waukesha Motor Co. in collaboration with the committee, and was exhibited and discussed at the 1929 meeting of the American Petroleum Institute at Chicago last December.

Several of the laboratories already have completed their first set of tests, and all have begun the work outlined. After completion of this preliminary work by all laboratories the data from each will be assembled and studied by members of the committee, as the details of the next step in the problem will depend largely on the results of the work now under way.

The committee not only must determine the optimum engine conditions and the most easily reproducible method of conducting the test, but must also decide the nature of the fuel which is to be used as a reference fuel or standard by which all other motor fuels are to be "measured" with reference to detonation characteristics.

That all this is a very large order is understood by everyone conversant with the problem, and Mr. Boyd believes that the rate of progress at present is as fast as could be expected, considering the fundamental nature of the undertaking; this opinion is concurred in by several other technologists who have been questioned regarding the problem.

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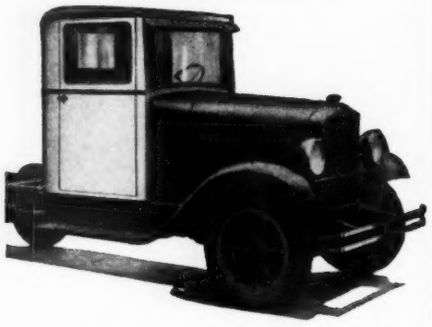

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The importance of smart appearance is not to be over estimated in some businesses today.

This Highland Cab, Model C. O. 55 shown above, will dress up your cabs.

Notice its clean cut lines—its rounded corners,—its clear vision—and the smart, cadet type visor. Inside it is just as comfortable as it is smart looking outside.

Of course, like the three other general types of Highland Cabs, it is made with the special Highland Rockes Sill Mounting.

Inspect this cab at the Highland Distributor near you or write us for more complete information.

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430 Elmwood Place, Cincinnati, Ohio

HIGHLAND
for CABS

ON THE LAZY BENCH

National Petroleum News

Another Village Blacksmith

Under a spreading chestnut tree
A stubborn auto stands;
The smith, an angry man is he,
With trouble on his hands.
The carburetor seems to be
The cause of all his woe;
He tightens half a dozen bolts,
But still it doesn't go.
He sits beside the road to give
His brain a chance to cool.
He ponders on his training
In the correspondence school.
And then he starts his job once more,
And just by chance 'tis seen,
The cause of all his trouble is
He's out of gasoline.

—Mid-Continent Petroleum Courier

* * *

Kindly Remembered

During a hold-up in Chicago, according to S. H., a young stenographer was grazed by a bullet. Thinking she was dying, she dictated a farewell note. "Write to Johnnie," she whispered. "Give him my true love and best regards. Carbon copies to Harold, Fred and William."

—The Gas Line

* * *

"What's the idea of all the crowd at church?"

"There's a traveling salesman down there confessing his sins."

—The Southwestern Bulletin

* * *

"Here, colored boy, come out of that hen house."

"Talk sense, boss; how's I comin' out when I ain't in here?"

—Magnolia Oil News

* * *

Irate Father: "I can see right through that chorus girl's intrigue."

Lovesick Son: "I know, dad, but they all dress that way nowadays."

—Southwestern Bulletin

* * *

Scientific Salesmanship

Johnny, who had the suavity of an experienced salesman, backed by the innocent expression of childhood, approached a house and rang the bell. A woman appeared.

"Do you want to buy thome 'ittle tittens?" said Johnny.

"Some what?" said the woman, puzzled.

"Do you want to buy thome toot 'ittle tittens?" repeated Johnny.

"I really don't understand," said the woman.

Johnny repeated himself a third time. Still no luck.

"For trying out loud!" shrieked Johnny, losing all patience, "do you want to buy a dam dood tat!"

—The Loreco Diamond

* * *

Blame The Crossword Puzzle

Wife: "What's a female sheep?"
Husband: "Ewe."
And another big war was on.

—The Gas Line

* * *

A near-sighted man and his wife were inspecting an art exhibit with critical care.

"That's the ugliest portrait I've ever seen," he cried angrily, striving vainly for a better view of the abomination.

"Come away, you fool," replied his wife. "You're looking at yourself in a mirror."

—Magnolia Oil News

* * *

Meeting Requirements

The street railway had a vacancy in its stenographic department, and as all progressive firms nowadays have a personnel department where applicants must give everything from the color of their grandmother's eyelashes to the indebtedness of their third cousin on their father's side, one young lady made out her application in the following manner:

Calf: Fourteen inches.
Thigh: Thirty-six inches.
Neck: Positively.

—Mid-Continent Petroleum Courier

* * *

If a book is 99 44/100% pure it sinks.

—En-ar-co National News

* * *

Unaccommodating

An engineer surveying the right-of-way for a proposed railroad in 1870 was talking to a farmer.

"Yes," he said, "the line will run right through your barnyard."

"Well," answered the farmer, "ye can do it if ye want, but I'll be jiggered if I'll git up in the night just to open the gate every time a train comes through."

—The Loreco Diamond

* * *

Diplomacy

Customer: "To what do you owe your wonderful success as a house to house salesman?"

Oil Salesman: "To the first five words I utter when a woman opens the door: 'Miss, is your mother in?'"

—The Gas Line

Service Combats Price in Employees Buying Goods at Discount

By E. L. Barringer
N. P. N. STAFF WRITER

FAIRMONT, W. Va.

COMPETITION for the motorist's gasoline and oil dollar through industrial plants selling these commodities to employees has been an annoyance to many oil jobbers. These plants, buying their requirements in tank car lots, can offer the goods to employees at a price below that posted at the service station.

To combat this competition the Patton-Henry Co., Fairmont, W. Va., through its retail distributing system, DeLuxe Service, Inc., is preparing to offer motorists a "Proposal of Service." While the jobber is at a disadvantage on price he has the advantage on service, and this servicing plan is Patton-Henry's method of putting more emphasis on why to buy through the service station.

The "Proposal of Service" is that the customer should register his auto with the company, and come in once a week for an inspection. The customer is informed what services are necessary, following the inspection, and a copy of the report is mailed to him. No work is done on the customer's car unless he authorizes it.

The plan is being put in effect now, with a sales letter and a copy of the inspection report being sent through the mail.

An illuminated billboard at a retail outlet of the Patton-Henry Co., Fairmont, W. Va., advertising service. Andrew Henry, general manager of the company, is in the foreground

Other information on the report covers name and address of owner; registration number; make, year, model, and license of car; speedometer reading; size of tires; kind of brakes; instructions; and when work is to be finished.

Opposite each classification on the report is space for remarks on the conditions found, with recommendations.

The service departments of the Patton-Henry Co.'s one-stop station are in the basement at the rear. Tires are repaired and sold on the ground floor. Autos are washed, lubricated and wheels adjusted in the basement

Twenty-one inspection points are listed on the report. These are split into six divisions, comprising tires and rims, safety service, wheels, battery, cooling system, and filling station.

Classifications under tires and rims are inflation, inspect tires for cuts and injuries, inspect tires for rapid wear, inspect tires for nails and glass, inspect valves and valve parts, and inspect rims and rim parts. Under safety service there are test brakes, test and adjust headlights, inspect windshield cleaner, and inspect horn.

Under the wheels division there is inspection for toe-in, inspect camber, and inspect axle castor. Battery inspection includes test gravity, add water, and inspect terminals and seating. The cooling system work covers add water to radiator, and inspect hose and fan belt. The filling station division is for inspection of gasoline supply, inspection of oil supply, and test for lubrication.

The company is appealing to the public to accept the service as a means of reducing operating costs and to eliminate dangers of break down on the road, as well as the convenience of knowing the car is in good working order.

The letter being mailed to sell this service follows:

"Dear Sir:

"Regular inspection can do much to reduce the expense of operating your car, as well as eliminate the dangers or inconveniences of failures and troubles while driving.

"With the above thought in mind we wish to submit to you a program, which calls for a complete inspection of your car weekly. This program is a radical departure from the ordinary type of service and we feel that its many advantages will show you

a substantial saving and satisfaction in the operation of your car.

"By virtue of our complete equipment and up-to-date methods for inspection work of this type, we are confident that you as a car owner, will readily see the advantages that this program will give you.

"There is no cost attached to this 'proposal of service' and all we ask of you is that you will register your car with us and bring it to our service station weekly. We will completely service same and give you a report of the condition and recommendations which we find from this inspection, a copy of which is mailed you after the inspection.

"We are as much interested as you in the economical operation of your car, and it is only good business on our part to render you this service. If we give service, sales will take care of themselves.

"We would be very glad to have you come in so that we can personally explain our 'Proposal of Service Plan,' or if you prefer we would be glad to have our representative call on you.

Yours very truly,
DeLuxe Service, Inc."

Michigan Boosts Code In House Organ

CLEVELAND, Feb. 6.—To promote interest in the code of ethics the November issue of "Flash Points," official publication of the Michigan Oil Men's Association was given to discussion and explanation of the code.

The first article, entitled "Where Would It Have Ended," told about the code abolishing opening days for service stations. It was written by H. H. Ragle, president and executive director of the association. Following was a similar article on commercial discounts.

The issue also contained comment on the code from various oil men in Michigan, and reprints of what some newspapers have written about the code.

Shanghai Vacuum Oil Co. Gets New Manager

NEW YORK, Feb. 7.—L. M. Smith, formerly eastern manager in New York of the manufacturing service division of the Vacuum Oil Co., here, has been appointed general manager of the company at Shanghai, China. Mr. Smith sailed the first of February for his new post in the Far East.

The Shanghai branch embraces the North China territory, in addition to Shanghai, the districts of Manchuria, Mongolia, Sinkiang and Tibet.

Mr. Smith succeeds W. M. Stewart, who retired because of ill health. E. H. Rawlings, who has been in charge of technical education in the manufacturing service division, succeeds Mr. Smith as eastern manager of the division.

NEW YORK, Feb. 6.—The American Oil Burner Association has issued a bulletin against "lavish, unwarranted and wholesale entertainment" at conventions and has asked exhibitors and those planning to attend the annual convention in Chicago the week of April 7 to cooperate in the "abatement of such practices." The action was taken by directors in meeting Jan. 14.

Ohio Jobber's Efforts Double Number of Tourists in Year

Staff Special
LOGAN, O.

R. R. LANNING, president of the Crystal Rock Gas Co. of Logan, leaned back in his chair, gazed out the window at the snow covered ground and sleet encrusted trees and shrubs, and surveyed in his mind what he had accomplished the past year for himself, the oil industry and his community.

Lanning is the man who was so impressed with the splendors of his home county that he took it upon himself to tell the rest of Ohio all about it. In fact he advised the rest of Ohio it would well repay them to get into their cars and come down, or over or up, to Hocking county and take a look at nature undefiled.

Lanning urged on the Ohio Petroleum Marketers Association that it campaign for more motoring and more knowledge of the state by its residents. He suggested a slogan, "Know Ohio—Drive More—See More—Learn More"—which was adopted and printed on the road maps of O.P.M.A. members in 1929. The maps contained markers for 59 points of historical or scenic interest—but that is getting too far away from Lanning.

L. M. Smith

Lanning is somewhat of a dilettante naturalist—that is, a naturalist who doesn't work too hard at the profession. He kept singing peans of Hocking into the ears of automobile and outdoor editors of Ohio newspapers, the secretaries of Ohio chambers of commerce, luncheon clubs and whatnot organizations. He sent them maps of the Hocking river valley along which are situated scores of natural beauty spots. And pretty soon automobiles that bore license numbers not issued in Hocking county, began to appear on Logan streets and radiating highways Saturdays, Sundays and holidays. The Lanning work was beginning to take effect. Then the numbers increased.

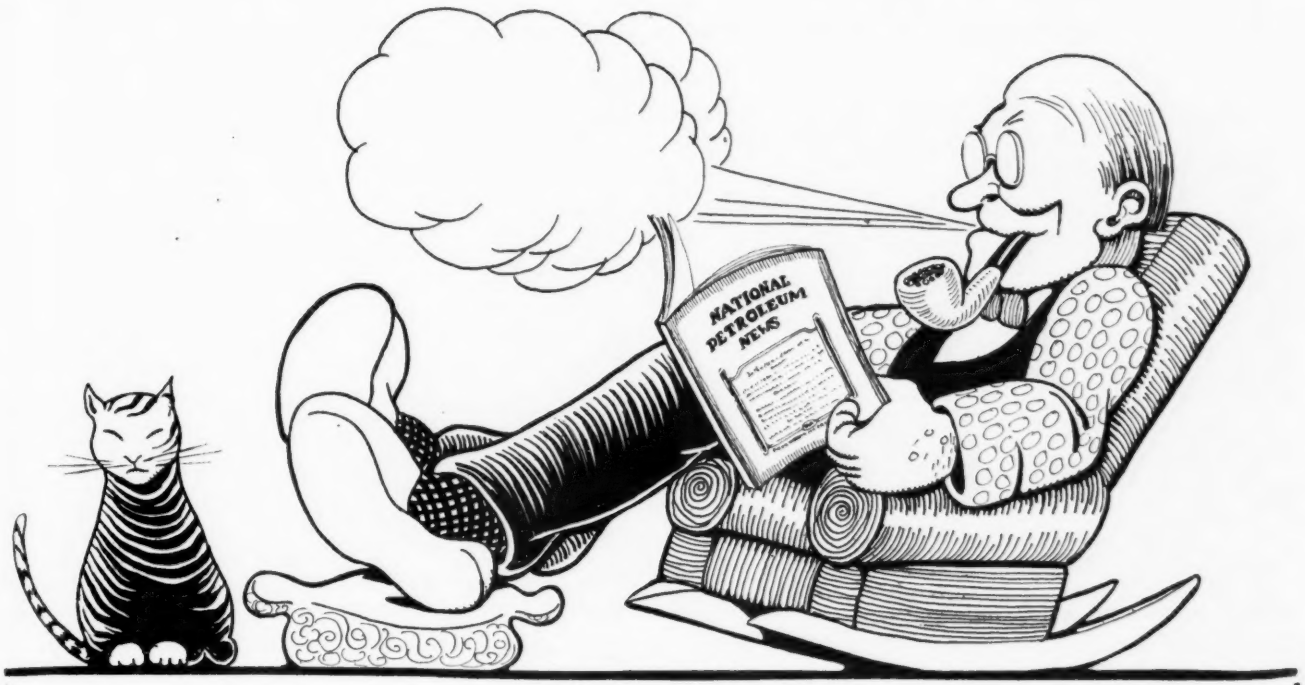
State forest rangers have registered the visitors to three points in the state forest system in Hocking county, and more than 90,000 names were recorded at two stations. The third station when it reports is expected to bring the total well over 100,000 for 1929, or more than twice the number that visited the region the year before.

The publicity work has been taken over by the Logan Chamber of Commerce and two of the luncheon clubs but Lanning is still an active worker for the cause. His early efforts were recounted in NATIONAL PETROLEUM NEWS for March 20, 1929.

The tens of thousands of visitors have helped the business of the community a great deal, not only the gasoline business but everything.

And it has not stopped with winter. Interest in the scenery in winter dress has been stimulated in amateur photographic contests in pictorial sections of Sunday newspapers in several Ohio cities. Recently two prizes were won by Hocking valley pictures which were submitted by men from outside Hocking county.

Lanning is pleased with the results of the campaign. It has helped his business and the business of his dealers all of which operate in the Hocking valley along a stretch of about 25 miles. It has helped other oil companies' trade. Just how much he has improved his business he doesn't tell but he isn't worrying a great deal—not even about the lease and agency operations of his competitors.



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"A GOOD easy chair, my well-worn slippers, my old pipe and my weekly copy of NATIONAL PETROLEUM NEWS—is a genuine luxury, and I look forward to it every week with pleasure and profit."

These words of a veteran oil man in Pennsylvania carry a good suggestion to every man who depends on the "office copy" of National Petroleum News to keep abreast of the happenings in the oil industry.

A "home copy" of National Petroleum News is a touch of luxury and convenience you will enjoy and profit by. And the small sum of $3.50 will bring you this luxury, convenience, enjoyment and profit each week for a year. Send for it today.

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The luxury of a "home copy" appeals to me. Send the next 52 issues of National Petroleum News to the address below. Enclosed is $3.50 (Foreign $5).

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Reo Adopts Paid-in-Advance, Flat Rate Lube Plan

CLEVELAND, Feb. 6

REO MOTOR CAR CO. has recently adopted a service plan by which it hopes to grease, oil and maintain the new cars its dealers will sell.

The plan calls for a paid-in-advance, flat price, $55 in the case of passenger cars and more for trucks, over a 10,000-mile period. The service includes changing the crankcase oil, complete chassis lubrication, tightening, inspection and adjustment of the working parts every 1000 miles. Oil and greases are included in the flat price.

In an effort to get the new car buyers into the station at the regular intervals, a rebate of 10 per cent is to be given when the car owner calls at a dealer's service station within 150 miles of the 1000-mile intervals.

The service is sold by means of coupon books and each coupon has a mileage marker on it. The coupon books, however, may be bought on deferred payments, included in the monthly installments for new cars, the company announced. After the first book has been used another for a second 10,000 miles may be bought. After that the company did not announce whether it would continue to maintain the cars at the flat rate. There is an optional winter maintenance rate of $60 for 10,000 miles. Under the $60 plan the crankcase oil is to be changed every 500 miles.

In announcing the plan, Don C. Streeter, service manager of Reo with headquarters at Lansing, Mich., said: "At least 80 per cent of all ills in the operation of automobiles are caused by lack of lubrication or lubrication that is faulty. The plan provides new car owners with the kind of service and inspection that not only prolongs the life of the car but increases its operating efficiency as well. Nothing but the best tested lubricants are used, and these only after rigid experimentation by factory engineers and the service department."

In a lubrication sheet dated June 1, 1929, Reo lists 47 brands of oils as being satisfactory for its passenger cars for summer use and 21 oils for winter use. Its "preferred engine oil specifications" at that date were:

	Summer	Winter
Gravity	Over 25°	19 to 21°
Flash	400° minimum	350° minimum
Saybolt Vis. at 100	350 sec. maximum	350 sec. maximum
Saybolt Vis. at 212	50-55 sec.	50-55 sec
Pour Test	Not essential	Zero
Emulsification	None	None

At average current rates for lubrication work the car owner would have to pay for the 10 jobs he would receive in 10,000 miles approximately as follows:

Oil, 60 quarts at 30 cents	$18.00
Gear compound. 5 pints at 35 cents	1.75
Chassis jobs at $1.25	12.50
Total	$32.50

This is exclusive of the tightening, inspection and minor adjustments. For this total service, if he takes advantage of 10 per cent rebate by calling at the Reo service station within the limits of the mileage tolerances, he pays $49.50 in summer, or $54 at the 500-mile interval rate, making the non-lubrication work cost him $17.25 in summer and considerably less in winter because in winter he would get twice as much oil as he got in summer.

Not all Reo dealers have installed the plan, to date, the company announced, but complete adoption is expected so the Reo car owner can get the special maintenance service no matter where he may be with his car.

Efforts of automobile manufacturers to get buyers of their cars into their dealers' service stations regularly are not new, but this is probably the first time a flat rate plan sold in advance has been attempted.

Several manufacturers have tried giving free inspection and adjustments during the first 90 days of the car's life, or up to a certain number of miles, the owner paying only for the material used in the work. According to Reo this plan has not been a great success.

A year ago Ford Motor Co. approved a lubrication merchandising plan devised by Alemite but this plan called for no advance payments and the intervals between visits were wholly at the discretion of the car owners although calls every 500 miles were recommended.

NEW TRADE MARK LAW

(By National Trade-Mark Co.)
(Washington, D. C.)

HEARINGS were completed before the house of representatives recently on the proposed new trade mark bill, and it is predicted the bill will be passed this session.

The bill contains drastic changes, many of which will prove of benefit to trade mark owners. For instance, all trade mark users are permitted, in fact urged, to enter for record in the patent office any and all trade marks used by them, upon payment of a small fee, for the purpose of having a place to go for information as to what marks are being used, besides those which have been registered. Also it is provided that if trade mark users do not enter their marks within a year after the passage of this act, or within one year from the first use thereof, they will have to pay an extra sum should they file after the prescribed time.

The bill provides that every five years all registrants and entrants must make affidavit that their marks are in use, or else the registrations will be cancelled. This is a radical change, and will serve to weed out from the records useless and abandoned marks.

There is a provision made for registration of service marks and slogans, such as those used by laundries and dyers, who only sell their service. Heretofore, there was no way to register such service marks.

There is a special provision for quickly registering trade marks for use in export trade, so that foreign registrations may be obtained before goods are shipped to foreign countries, to avoid piracy.

Further information will be furnished to subscribers and readers of this journal concerning this important piece of legislation immediately upon the passage of this bill.

Oil Trademarks For Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C. trade-mark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"STRAIGHT WAY." Ser. No. 282,873. The National Supply Co. of Delaware, New York, N. Y. For oil-well tools, namely, crown blocks and parts thereof.

"FIRTHITE." Ser. No. 287,290. Firth-Sterling Steel Co., McKeesport, Pa. For tools.

"FIRTHALOY." Ser. No. 287,291. Firth-Sterling Steel Co., McKeesport, Pa. For tools.

"ICY-FLO." Ser. No. 276,944. The Arrow Oil Company, Wooster, Ohio. For motor lubricating oil.

ADVERTISING PAGES REMOVED

New terminal of The Texas Co. at Chelsea, Mass., showing end of one-story pumphouse, warehouse and office building, and loading rack in paved court. Small building in right foreground is one of several hose reel houses around the terminal

Waste Effort Eliminated in Terminal by Direct Product Movement

By Roger B. Stafford
N. P. N. STAFF WRITER

BOSTON, Feb. 6

KNOWLEDGE gained in operation of scores of bulk plants throughout the United States directed the designing of The Texas Co.'s new terminal at Chelsea, Mass., which will serve the company's market outlets in metropolitan Boston.

Although it was physically impossible to follow to the letter the axiom that a straight line is the shortest distance between two points, all products are moved through the new terminal in as near a straight line as possible. The design is intended to eliminate duplication of effort or movement and all unnecessary labor.

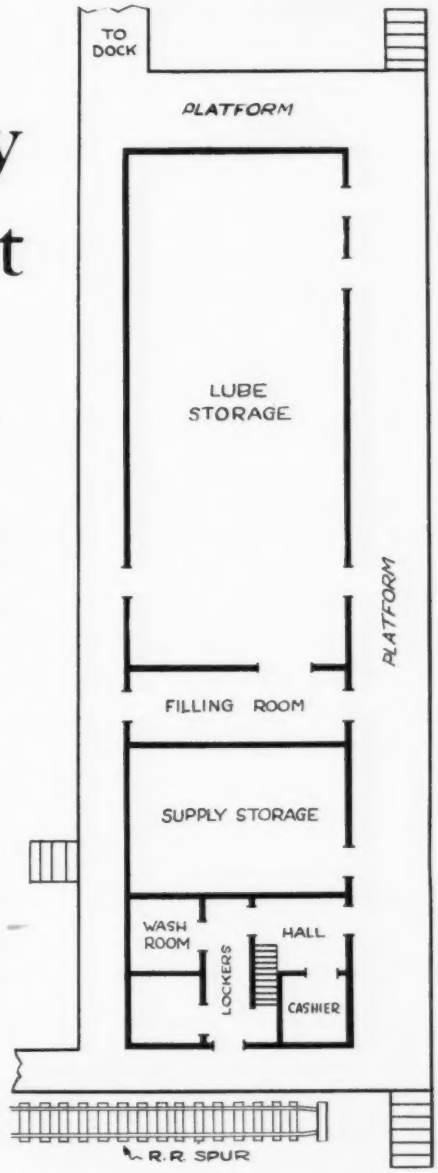
The plant was opened for public inspection Jan. 24 and was put into active service shortly thereafter. It has two gasoline storage tanks of approximately 500,000 gallons' capacity each, a kerosene tank of less than 100,000 gallons' capacity, a pump house, combination office, warehouse and lube storage and handling building, garage for 20 trucks, and a truck repair shop which is used for all automotive equipment in the company's New England district.

Gasoline and kerosene are received by barge from Texas Co. refineries farther down the Atlantic coast and lubricating oils are brought in by tank car.

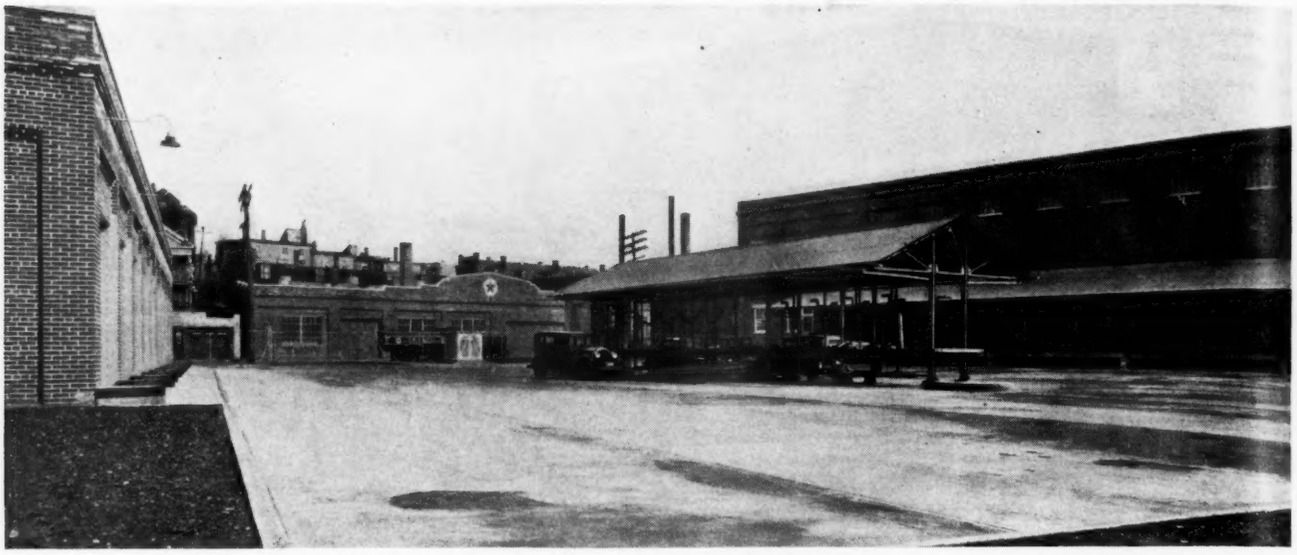
The unloading dock is built on piles in Chelsea creek. The floor of the dock is concrete with a curb around the edge to prevent any leakage running into the water. There are two gasoline unloading lines and one kerosene line on the dock, which is connected with a concrete platform that surrounds the warehouse and office building by an iron expansion joint.

Unloading is done with power pumps on the barges. The pipe lines lead directly from the dock to the storage tanks.

A concrete wall surrounds the tanks. The receptacle formed by the wall has a capacity of 165 per cent of the capacity of the three tanks. A law in Massachusetts requires a wall that will form a receptacle only 150 per cent of the capacity of the enclosed tankage but The Texas Co. added the 15 per cent extra to pro-



Ground plan of The Texas Co.'s warehouse at its new terminal at Chelsea, Mass.



Garage on left at The Texas Co.'s new Chelsea, Mass., terminal. Repair shop for motor equipment is the building with Texaco Star in the pediment. Gasoline and kerosene loading rack and warehouse are to the right. Swing lines at the loading rack had not yet been placed when this picture was taken

vide further safety and possible addition of small tanks. All tanks are provided with the latest vents to minimize evaporation and each tank has foamite equipment built into it.

Gasoline and kerosene lines from the tanks pass through the pump house, which has been built between the tank enclosure and the warehouse, and on a direct line with the loading rack in the center of the court on the far side of the warehouse. The liquid may pass through the pumps or it may be by-passed by means of a manifold.

From the pump house the pipes pass through a conduit under the warehouse across the court to the loading rack. The conduit is covered with only an iron grating of sufficient weight to bear truck traffic over it.

The loading rack is a covered platform with six gasoline and two kerosene outlets on each side. The loading clerk has a small office at one end. The outlets are all 3-inch and Xacto meters are set in each line. In front of the clerk's office is a gasoline pump for fueling the trucks. The garage faces the court in which the loading rack is built.

Loading of gasoline and kerosene is partly by gravity and partly by power. Gravity is used when the level of the commodity is high in the storage tanks but when the level falls until the liquid lacks a strong head the power pumps are used. The pumps are remotely controlled from the loading rack platform.

The spur track over which lubricating oils, barrels and other supplies are received, enters the plant yard at a corner near the gasoline and kerosene tank enclosure and at some distance from the warehouse. There are two unloading racks with six oil lines and a steam line to each. The lines lead to the pump house and then to lube tanks on the second floor of the warehouse. The lube lines are so manifolded that any one of the three oil pumps may pump oil from either of the unloading racks to any of the six storage tanks.

On the first floor of the warehouse under one end of the storage tank room is the barrel and can filling room. Oil flows by gravity from the tanks through lines that pass in front of steam radiators to the 12 automatic stop barrels fillers and the 12 can fillers which have manually operated gate faucets.

The outlets for the faucets are set just beneath the barrel fillers so that only one set of piping is required. The company has found that rarely at a bulk station has it been necessary to fill barrels and cans at the same time. The filling room extends across the warehouse with doors from the platform on one side where new drums may be brought in and doors to the stake truck and lube tank truck loading platform on the other side of the warehouse.

Along one side of the filling room, opposite the barrel and can fillers, is a steel rack on which it is planned to set drums that contain specialty oils not carried in large tankage.

Oils delivered from the lube tanks to tank trucks flow by gravity through lines to a loading rack under a canopy that extends over part of the platform. There are six of these lines, all 3-inch, and each is covered on its outdoor end with 2½ inches of cellular pipe covering. The covering prevents the oil from chilling in severely cold weather.

There is a door from the filling room directly to the barreled oil storage room at the rear of the warehouse. Filled barrels are stored on steel racks and are hoisted to the upper levels of the racks with portable electric lifts, of which this warehouse has two.

There is a door from this storage room to the covered platform for loading on stake trucks.

All rooms for the handling of lubes are steam heated, all stairways are steel, and a steel runway has been built between the storage tanks on the second floor. Gaging hatches for all six tanks are within an arm-length of the runway.

The front part of the second floor is used for offices for the terminal but the cashier with whom the truckmen settle for their sales is on the first floor so it is unnecessary for truckmen to go to the other offices. The first floor also has a locker room and washroom with showers for the station employes and drivers.

The pump house has three rooms. In a room at one end are two gasoline, one kerosene and three lube pumps and the manifolds. All pumps are Blackmer rotaries. The middle room is the motor room. Although three-phase motors are used, a fireproof wall separates them from the pumps. The drive shafts pass through the wall with the openings around the shafts packed tight enough to prevent the passage of vapor.

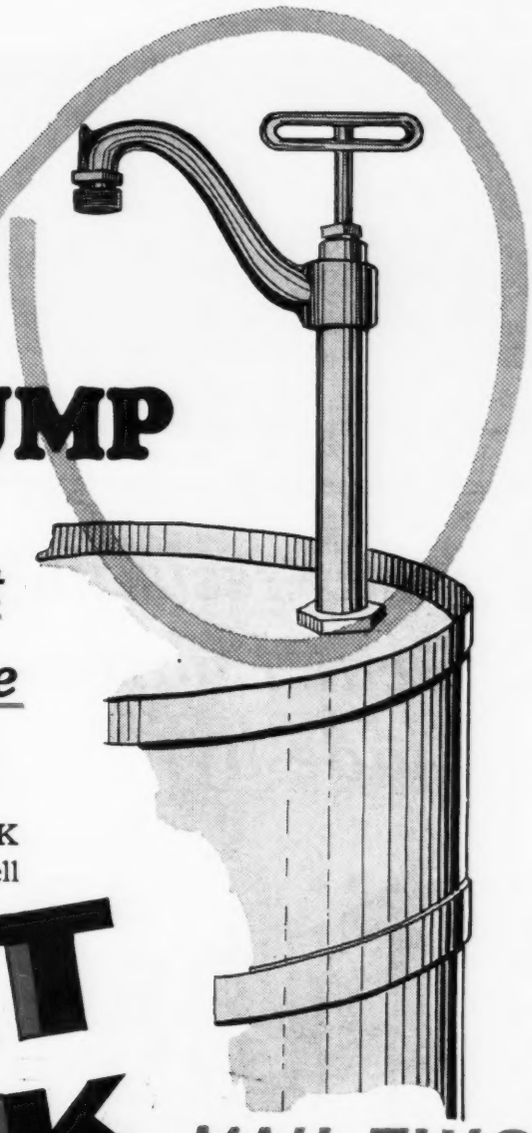
The third room is used for the foamite mixers and pumps.

Each pipe in the station may be identified by the color of its couplings, elbows and valves. All gasoline connections are red, kerosene gray, lubricating oils green, and foam and steam lines white.

The steam plant is in the basement of the garage. A low pressure water boiler is used with coal as fuel. Where high pressure boilers are used in terminals the company usually burns oil.

The garage has 10 long stalls in each of which two large tank trucks

LET THIS HANDY NEW HOME OIL PUMP



INCREASE your Market
" your Volume
" your Profits

Every time you sell or give a man a KWART KWICK you make a regular bulk buyer out of him. You sell DRUMS instead of gallons.

KWART KWICK HOME OIL PUMP

Specially designed for the home garage or farm. Fits any drum or barrel. Works equally well with oil, gas, etc. Strongly built of brass, steel and cast iron. No leather to be replaced; only 2 simple valves; nothing to cause trouble. Simple, strong, efficient. Low in cost; long in service. Attractive special prices to oil companies on quantity lots.

Ideal for use in your sales promotion campaigns. Wins new customers, and makes permanent bulk buyers of them. Many companies give Kwart Kwicks to car owners, farmers, etc. with quantity purchases (the cost is so low). Others sell it, on a contract which gives the pump to the user after he has bought so much oil or gas. A wonderful volume builder for stations who use it in their sales campaigns.

Now is the time to learn how you can increase your oil volume 100% to 200% by distributing this pump with bulk sales. Clip and mail coupon for full information and prices.

VIKING PUMP CO., Cedar Falls, Ia.

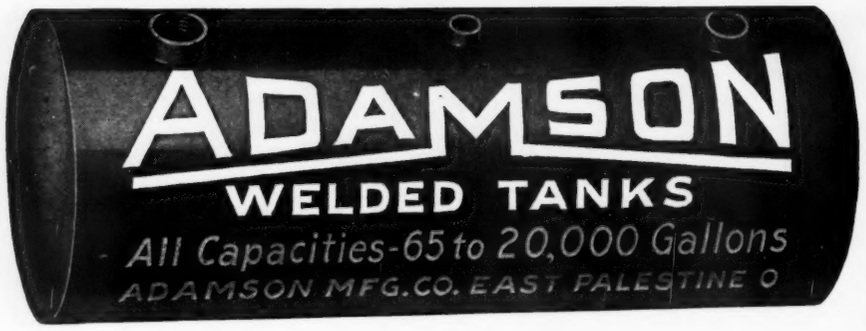
MAIL THIS COUPON for Free Literature

Viking Pump Co.,
Dep't. B
Cedar Falls, Iowa

Please send details and prices on the Kwart Kwick pump. No obligation.

Name .....

Town ..... State .....



Cold-resisting Gear Lubricants made by

TRADE MARK
REG. U.S. PAT. OFF.
FISKE'S

Put up under Your own Brand

When you sell these seasoned, smoothly effective cold-test lubricants, your customer buys with them freedom from worry, assured satisfaction and confidence in your brand.

We shall be glad to send samples—they will establish our claims—and prices, which you will find attractive.

Established 1870

FISKE BROTHERS REFINING CO.

24 State Street, New York, N. Y.

NEWARK, N. J. *Works* TOLEDO, OHIO

may be placed. Trucks are washed where they are parked so a high pressure laundering unit has been mounted on a low truck and may be moved anywhere in the garage. Water connections are provided along the wall opposite the entrance doors.

All buildings are of fireproof material even to the roofs. The court is paved with concrete and the rest of the property is covered with gravel. The entire plant is surrounded with a 7-foot woven wire fence with three strings of barbed wire at the top.

The truck maintenance building is across the street from the terminal. It has facilities to handle 20 or more trucks at a time. A feature is a board walk along the mechanics' benches to relieve them of the fatigue that comes of working many hours on a concrete floor.

The shop contains an office with storeroom adjoining, machine shop, locker and wash room with showers, pump repair and storage room, and room for storing of the more valuable materials. It has its own heating plant.

The layout was arranged by C. A. Bleyle, who is supervisor of the company's motor equipment in New England and construction of this and the terminal was engineered by S. L. Burton.

J. K. Skillings is The Texas Co.'s manager for the New England district with G. N. Beaton in charge of operations and J. P. McHugh in charge of sales.

Jenney Builds Another Terminal at Boston

BOSTON, Feb. 1.—Jenney Mfg. Co., one of the largest gasoline distributors in the Boston area, has just completed a deep water bulk plant in Chelsea to serve its North Boston territory. The company also has a terminal in South Boston at which it receives tanker shipments of motor fuel.

The new Chelsea plant has tankage that totals approximately 5,500,000 gallons. It is being used mostly for gasoline although there is some tankage for fuel and burning oils.

Tankage at the new terminal consists of one tank of approximately 2,750,000 gallons' capacity (65,000 barrels); two of 1,000,000 gallons' capacity each; two of 250,000 gallons' each, and 10 of 25,000 gallons' capacity each. There also is a warehouse and a garage together with the necessary pumping and other bulk station equipment.

The new station has seven acres and adjoins the Chelsea terminal of the Standard Oil Co. of New York.

The Jenney Mfg. Co., entered business in 1812 as an importer and its headquarters have been in the same building at 8 India St., Boston, since 1815.

ADVERTISING PAGES REMOVED

Paragon Uses Elephant to Advertise New Gasoline Brand

By E. L. Barringer
N. P. N. STAFF WRITER

TOLEDO, OHIO

WHILE many oil companies turn to airplanes and other symbols of speed in advertising gasoline the Paragon Refining Co. is using the elephant to suggest power. Paragon is using the elephant in a current campaign in Detroit where the Wayco Oil Corp., a subsidiary company, is replacing Shell Petroleum Corp. gasoline with Wayco gasoline.

Probably Wayco customers wanted the elephants to pull them out of snow drifts over the holidays, but these beasts will appear in newspaper advertisements and on billboards.

The Wayco company was purchased in 1928 by Paragon. Wayco's contract with Shell expired Dec. 31, 1929, and the Wayco brand was marketed after that date. John Edwards, vice president of Paragon, is president of Wayco, and the service stations are in charge of Dewey Schlee, one of the brothers who founded the Wayco company. Sale of Valvoline motor oil will be continued.

The elephant was chosen to supplliment the slogan "That Mighty Gasoline." On the blanket over the animal is the slogan, "More Power To You." The advertising campaign started Dec. 15 and will continue through January and February.

Full page advertisements in all Detroit newspapers Dec. 15 told of the Wayco gasoline brand to be on the market Jan. 1. Three-quarter page advertisements, three times a week, were scheduled in all newspapers for the remainder of December.

The January campaign calls for three quarter page advertisements twice a week. In February the campaign will be quarter page advertisements three times a week in all papers.

A total of 150 billboards, including 100 that are illuminated, will be used in the campaign, the posters to be changed each month. When new posters are put up, showing a change in position of the elephant, one newspaper insertion will be increased to full page or three-quarter page size.

Wayco has a bulk plant at Pontiac, Mich., and two in Detroit. There are 518 company owned or leased stations in this area. In Ohio Paragon operates about 220 company owned stations and about 250 leased stations under the Paragon name.

The elephant also will illustrate Paragon advertising and billboards in Ohio for January and February.

* * *

Every new order and every salesman's call from the Paragon Refining Co. is acknowledged by a personal typewritten letter. Every three months a letter is sent out to all old customers.

The letters are written on electrically operated typewriters. The company has three machines in Cincinnati, three in Toledo, and four in Detroit. These machines turn out a total of about 900 letters daily, and are operated except in the first quarter of the year when the company feels that the sending of such letters would not be profitable.

When a salesman's letter arrives at the office the orders and report are checked by the mail department; orders are sent to the order department; reports are sent to the advertising department which has charge of sending out these letters.

From the salesman's report the list is obtained, and when there are about 100 letters for any classification a stencil is cut and the letters turned out on the typewriters. The volume piles up rapidly so there is no delay in acknowledging a new order. The machines may be set to stop for filling in names, addresses and any other detail, so the letters may be as personal as if each were dictated.

Sending a carbon copy of a letter acknowledging a call to the salesman has a wholesome effect, said John Edwards, vice president of Paragon. The salesman knows the company is following up on his prospects, and any recommendations as to specifications of oils or other products made by the salesman, are confirmed to the customer and to the salesman. A second carbon copy may be made and filed if correspondence is indicated for a future date.

The letters are revised constantly as new ideas are received from anyone connected with the organization. Paragon pays from $5 down to a box of candy for new ideas.

Elwin Hadlick Succeeds Brother as Secretary

CLEVELAND, Feb. 6.—Elwin E. Hadlick was elected secretary of the Northwest Petroleum Association by its board of directors at Minneapolis Jan. 28. He succeeds his brother, Paul E. Hadlick, who becomes secretary of the new marketing division of the American Petroleum Institute.

Mr. Hadlick has been counsel for the association. He will continue in that capacity also. The Northwest Petroleum Association is an organization of jobbers in Minnesota, Wisconsin and North and South Dakota.

Elwin E. Hadlick

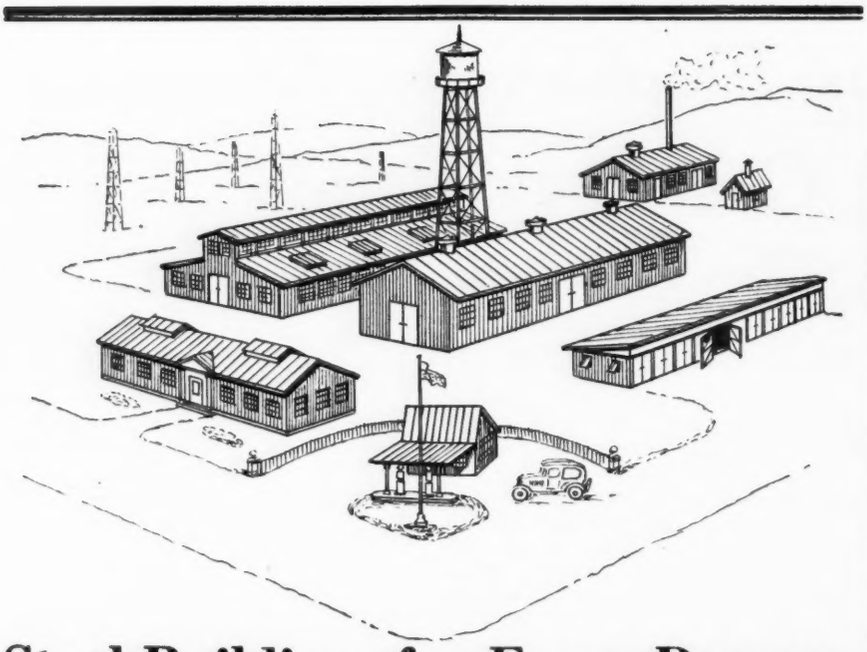
BOSTON, Feb. 1.—Fred Bergfors, Quincy Oil Co., Quincy, Mass., and Mrs. Bergfors, are spending his vacation on a West Indies cruise.

C. S. Jenney of the Jenney Mfg. Co., Boston, is sailing this week on a Mediterranean cruise.

James A. Porteous, Valley Oil Co., Middletown, Conn., is on his vacation now in Cuba.

I.O.M.A. Meet in March

CHICAGO, Feb. 6.—March 17 and 18 have been selected as the dates of the spring meeting and election of officers of the Independent Oil Men of America. The meeting will be held in Chicago.



Steel Buildings for Every Purpose

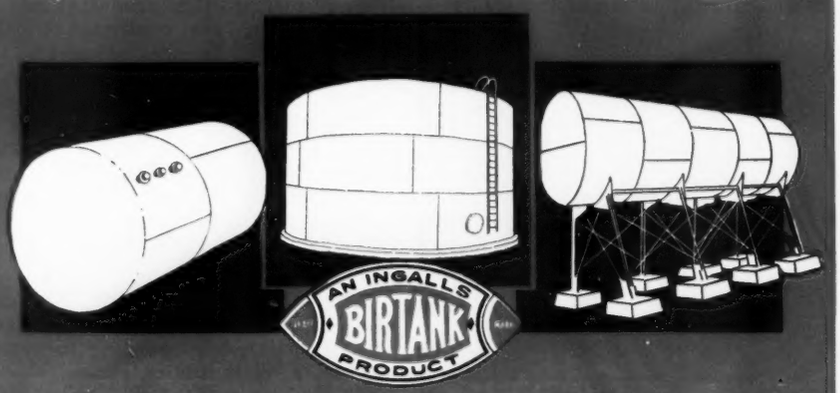
Warehouses - Pumphouses - Sub-Stations - Meterhouses - Engine Houses - Garages Gasoline and Oil Filling Stations, Etc.

We manufacture the simplest to the most elaborate filling stations. If you have in mind any additions or improvements, let us furnish you plans and prices.

The Edwards Manufacturing Co.

524-544 Eggleston Ave. Cincinnati, Ohio

TANKS



For Any Oil or Gas Storage

The finest new equipment and the most rigid inspection methods are used in building Birtanks. Tank users the South over specify Birtanks with the knowledge they are getting the best that can be produced.

Our stocks and our large production facilities mean quick shipment of your order whether for a standard size or any special design. Let us quote you.

BIRMINGHAM TANK CO., Birmingham, Ala.

New York - New Orleans Atlanta - Jackson, Miss. - Tampa

Ask Aluminum Tank Tests

CLEVELAND, Feb. 6.—Tests of the practicability of aluminum alloy as a safe material for gasoline truck tanks, may be conducted jointly by the American Petroleum Institute and the Underwriters' Laboratories as a result of a recommendation made in New York Jan. 21 at a meeting of the Committee on Flammable Liquids of the National Fire Protection Association.

The Committee on Flammable Liquids adopted a resolution advising against the use of aluminum truck tanks until comprehensive tests have demonstrated the safety of the material.

A sub-committee was appointed to cooperate with the A.P.I., Underwriters' Laboratories, and aluminum companies in planning and carrying out tests. The committee is to collect the data and report to the flammable liquids committee.

E. J. Smith, Underwriters' Laboratories, is chairman of the sub-committee. Other members are: W. E. Cooper, Bureau of Explosives; R. W. Black, Standard Oil Development Co.; C. B. Langdon, Factory Insurance Association, and D. V. Stroop, American Petroleum Institute.

Mr. Stroop presented a message from the eastern group of the A.P.I. General Committee on Automotive Transportation that the committee believed everything should be done to encourage the use of aluminum tanks and that all research facilities should be afforded to develop needed data so as to determine definitely whether the use of aluminum is feasible.

Opinion was expressed at the meeting that the chief advantage in the use of aluminum was its light weight, a tank of the same weight as steel giving 20 to 25 per cent more payload capacity.

The Bureau of Explosives, it was announced, has approved the use of aluminum for the building of several tank cars for the transportation of acetic acid but would not yet approve its use for the transportation of flammable liquids.

Chain Store Tax Misses Oil

CLEVELAND, Feb. 6.—The Georgia chain store tax law which is being attacked by some of the large operators of chain stores, does not apply to oil company service stations but a tax of $5 a pump is imposed by the state on oil companies. The chain store law provides for a tax of $50 a store when five or more stores are operated. Under the code of ethics dealers are required to pay the tax on pumps.

To Escape Winter's Fury

MOTORISTS FLOCK TO WINTER KING

Motorists find real shelter from winter's operating troubles when they use Champlin Winter King Gasoline. Here is a 60-62 gravity motor fuel that, in coldest weather, is quick starting, speedy accelerating, powerful and economical.

Winter King is straight run, refined from high-gravity, paraffin-base, sulphur-free Mid-Continent Crude. Its color is always water white and days in the sunlight will not mar its sparkling whiteness with the faintest tint of yellow.

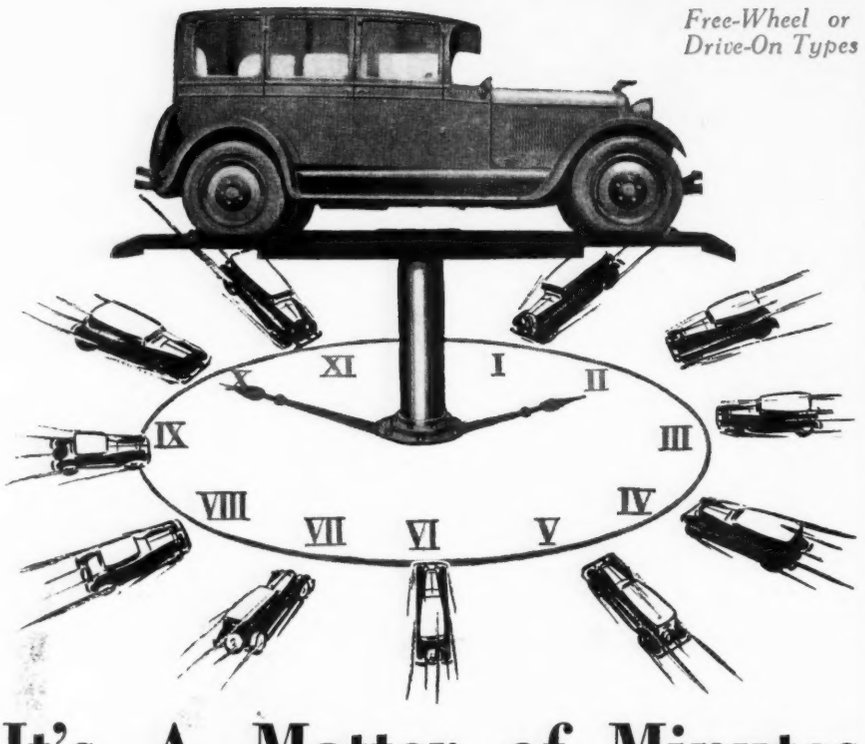
After successive seasons of widespread demand, this winter has found Champlin Winter King Gasoline enjoying greater and greater sales. Orders are handled promptly. Wire, write or phone the CHAMPLIN REFINING COMPANY, Enid, Oklahoma.

USE CHAMPLIN OILS

CHAMPLIN Winter King GASOLINE

When Time Is Money

Free-Wheel or Drive-On Types



It's A Matter of Minutes . . . . . with OTTAWA

Each car raised, greased and lowered in a few minutes time—OTTAWA hydraulic, oil supported, rotating lifts provide speedy service, unfailing dependability and economical operation to make every minute profitable. *Every OTTAWA LIFT installed has produced gains in greasing business of 100% to 600%.*

The addition of a new low-priced OTTAWA gives station owners four outstanding models to choose from. Like the higher priced models, the new OTTAWA is built for lifetime service.

There is only one moving part, nothing to wear out or go wrong. Easily installed at small cost from blue prints furnished.

This new OTTAWA LIFT, everything a good lift can be, is priced within the reach of every station owner—

ONLY $245.00 F.O.B. OTTAWA

EITHER FREE-WHEEL OR DRIVE-ON TYPE

Write today for full particulars—also prices of Ottawa Visible Pumps, Air Compressors and Air Towers.

OTTAWA MANUFACTURING CO.

"Machinery Builders for 30 Years"

230 FULLER STREET **OTTAWA, KANSAS**

Gasoline And Other Motor Fuels

by Ellis and Meigs, is a book which gives a complete survey of the field and a description of practically every process of making gasoline and most other motor fuels of promise or prominence.

The price of the book is $10. Just send us your check and we will mail a copy of it to you.

National Petroleum News, 1213 W. Third St., Cleveland, Ohio

New Stations Building

Note: Material used in this column is principally taken from the newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy.

The list as published from week to week cannot be looked upon as indicative of the relative extent to which stations are being built in various parts of the country.

Richmond, Mo.—Standard Oil Co., filling station.

Antigo, Wis.—Union Oil Co., filling station.

Mineola, Tex.—Magnolia Petroleum Co., filling station.

Austin, Tex.—M. H. Crockett, filling station.

Dodge City, Kans.—White Eagle Oil & Refining Co., filling station.

Hillside, N. J.—Pure Oil Co., filling station.

Hempstead, N. Y.—William Pfeiffer & Son, filling station.

Brighton, N. Y.—Harold Michaels, filling station.

Columbus, Ga.—I. E. Hood, filling station.

Hope, Ark.—Claud Hamilton, service station.

England, Ark.—Geo. W. Haley, service station.

Leavenworth, Kans.—Specifications Motoroil System, filling station.

Gordon, Neb.—C. H. Bartow, service station.

Sioux City, Ia.—The Texas Co., bulk and filling station.

Billings, Mont.—Russell Oil Co., filling station.

Washburn, Wis.—Washburn Motor Co., filling station.

Sioux Falls, S. D.—Standard Oil Co., service station.

Marion, O.—The Texas Co., filling station.

North Attleboro, Mass.—Brais & Lavery, service station.

Glenwood, Minn.—Skelly Oil Co., filling station.

Little Rock, Ark.—National Refining Co., service station.

Cleburne, Tex.—Humble Oil & Refining three service stations.

Enid, Okla.—D. C. Bass & Sons, filling station.

Jefferson, O.—J. E. Orford, filling station.

Youngstown, O.—Firestone Tire & Rubber Co., filling station.

East Liverpool, O.—Refiners Oil Co., bulk station.

Topeka, Kans.—Shell Petroleum Corp., service station.

Chanute, Kans. — Mid-Continent Petroleum Corp., filling station.

Baxter Springs, Kans.—Royal Dutch Shell Co., service station.

Baxter Springs, Kans.—Independent Oil Co., service station.

Cape Girardeau, Mo.—Louis Hecht, filling station.

Ottawa, Kans. — Mid-Continent Petroleum Corp., bulk and service station.

Glasgow, Mont.—Midwest Refining Co., filling station.

Providence, R. I.—Salvatore DiBona, filling station.

Newark, N. J.—William Okin, filling station.

Farmingdale, N. Y.—E. Trotta, filling station.

Birmingham, Ala.—Carl Steiner, filling station.

Plainfield, N. J.—Julia V. Keely, service station.

Roseau, Minn.—Standard Oil Co., bulk station.

Frederick, Okla.—Cities Service Oil Co., filling station.

Eau Claire, Wis.—Conley Oil Co., filling station.

Eau Claire, Wis.—Winona Oil Co., service station.

South Buffalo, N. Y.—The Larkin Co., filling station.

North Adams, Mass.—Earl J. Campbell, filling station.

Fort Pierce, Fla.—Gulf Refining Co., filling station.

Newark, N. J.—A. J. Isserman, filling station.

Newark, N. J.—Kaes Bros., filling station.

Broadway, Va.—Kendall Refining Co., filling station.

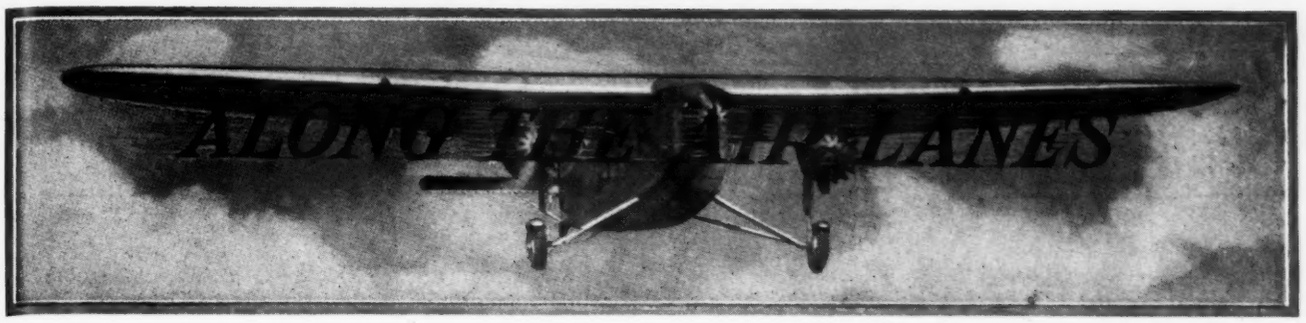
Binghamton, N. Y.—Deyo Oil Co., service station.

Roseau, Minn.—Peoples Oil Co., filling station.

Dickinson, N. D.—Standard Oil Co., service station.

Clinton, Okla.—The Texas Co., filling station.

Minneapolis, Minn.—Rodenberg Oil Co., filling station.



THE accompanying cut of the Lockheed-Vega plane of the Standard Oil Co. of New Jersey, with its wheel "Pants" and streamline cowling, presents a different picture than it did several months ago before these two features had been added at the plant in Glendale, Calif.

It has been estimated that the "pants" and cowling add 20 miles per hour to the plane's speed and some idea of how fast it will now travel can be gathered from the fact that only 15 hours and 40 minutes were consumed by Major E. E. Aldrin, pilot, in bringing the plane back to Newark, N. J. from California. This was considered a new elapsed-time record for transcontinental flight.

The trip was made in four hops, the last of which from Dayton, O., to Newark, was the speediest. Carrying two passengers, Major Aldrin flew an average of 3.4 miles per minute with the aid of a helping tail wind.

It was this plane which outsped a Curtiss PS, the fastest army plane built, in an impromptu race held recently at Mitchell field, New York City, demonstrating the efficiency of the wheel and engine coverings.

Incidentally, Major Aldrin, manager of the aviation department for the Standard of New Jersey, flew more hours during the first six months of 1929 than any other of the company's pilots. All of the company's planes were in the air a trifle over 500 hours. Major Aldrin flew 221 hours; Robert E. Ellis, 194 hours and 40 minutes; J. L. Baker, 75 hours and 25 minutes; W. W. White, 14 hours and 50 minutes and J. H. Vickers, five hours and 45 minutes. This time was spent in sales promotion work and in testing aviation products made by the company.

***

More than 1000 flights without a single mishap or forced landing due to mechanical trouble or motor failures, is one year's record of "Motormates," specially built Boeing biplane of the Associated Oil Co., San Francisco.

This has been due to the careful inspection of the engine regularly by mechanic H. K. Rothe, the January issue of "The Record," company publication, says.

From Sept. 5, 1928, to Nov. 30, 1929, "Motormates" carried 1554 passengers on 801 flights. It had been in the air 771 hours and 40 minutes during the 15 months the company has had it.

***

A string of 80,000 barrel oil tanks adjoining the refinery of the Continental Oil Co., at Ponca City, Okla., is being used by that company to tell aviators the name of the town. One row of tank tops has been used, and each tank top has only one letter of Ponca City painted on it, making this guide sign one of the largest aerial signs in the world.

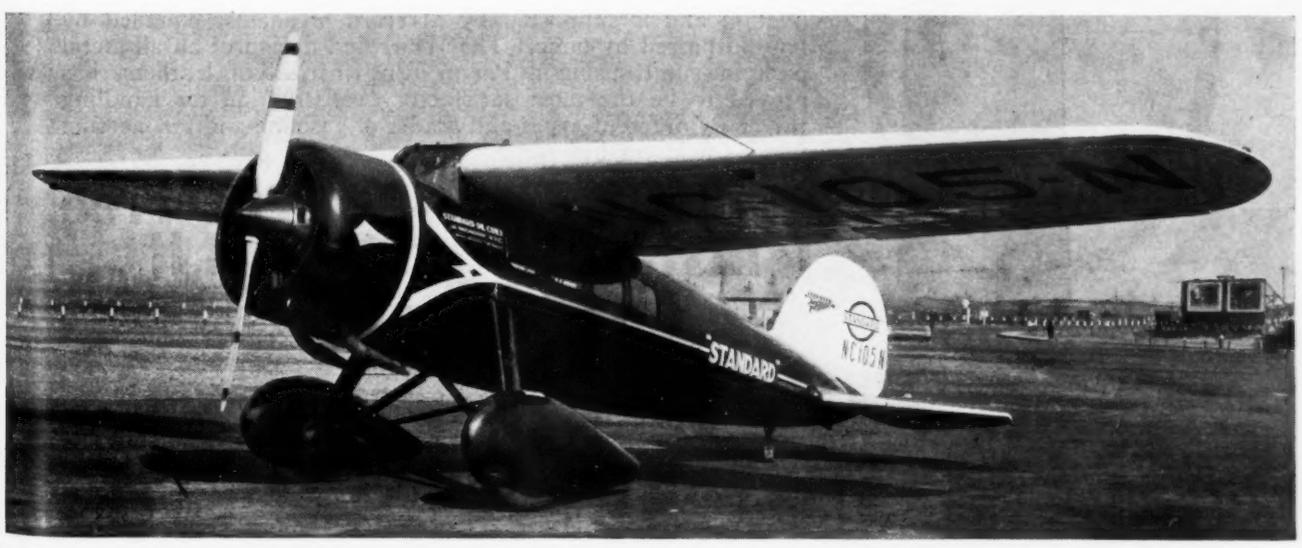
This tank farm of the Continental company holds about 10,000,000 barrels of oil.

***

The cost of operating a light airplane costing $3000 is but 3 cents higher per mile than the cost of operating an automobile, according to figures of the American Motorists' Association. The largest item in airplane operation is insurance, while that of the automobile is maintenance, which includes tires, repairs, and so on, the survey points out.

Here are the itemized figures as published in "Air Travel Guide," a publication devoted to western air news:

	Cents per mile	
	Airplane	Automobile
Gasoline	1.41	1.31
Oil	.21	.22
Depreciation	2.55	1.39
Maintenance (tires, repairs, etc.)	.75	2.86
Insurance	2.67	.21
Hangar-Garage	1.80	.44
Total cents per mile	9.39	6.43



Streamline cowling for the engine and "pants" for the wheels, have added so much to the speed of this Lockheed-Vega airplane of the Standard Oil Co. of New Jersey that Major E. E. Aldrin, manager of the aviation department, made a new elapsed-time record across the continent in the plane after these coverings had been added

AN APPEALING COMBINATION!
BEAUTY
Plus MECHANICAL PERFECTION
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WHIRLWIND PUMPING UNIT
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EVERYWHERE you hear about the "Economee" OCTAGON PUMP and its marvellous pumping unit! Remarkable ease of operation . . . surprising speed . . . thorough reliability! Thousands of Whirlwind Units doing a big job in a big way throughout the land, form a background which proves the mechanical perfection and correct design.
REMEMBER, the Whirlwind Pumping Unit is NOT new, not experimental. The unit is in its third year of production and is supported by a record of success equalled by few, surpassed by none. The Whirlwind design of an all-metal pumping unit, using a Piston Ring instead of leathers, has proved to be the most satisfactory construction for handling the many different types and grades of gasoline and for meeting various field conditions.
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No pumping unit investment could be more certain to return big dividends in the satisfaction that comes from smooth day-after-day operation under even adverse conditions.
Read details of mechanical perfection on opposite page.
The AMERICAN OIL PUMP & TANK Co.
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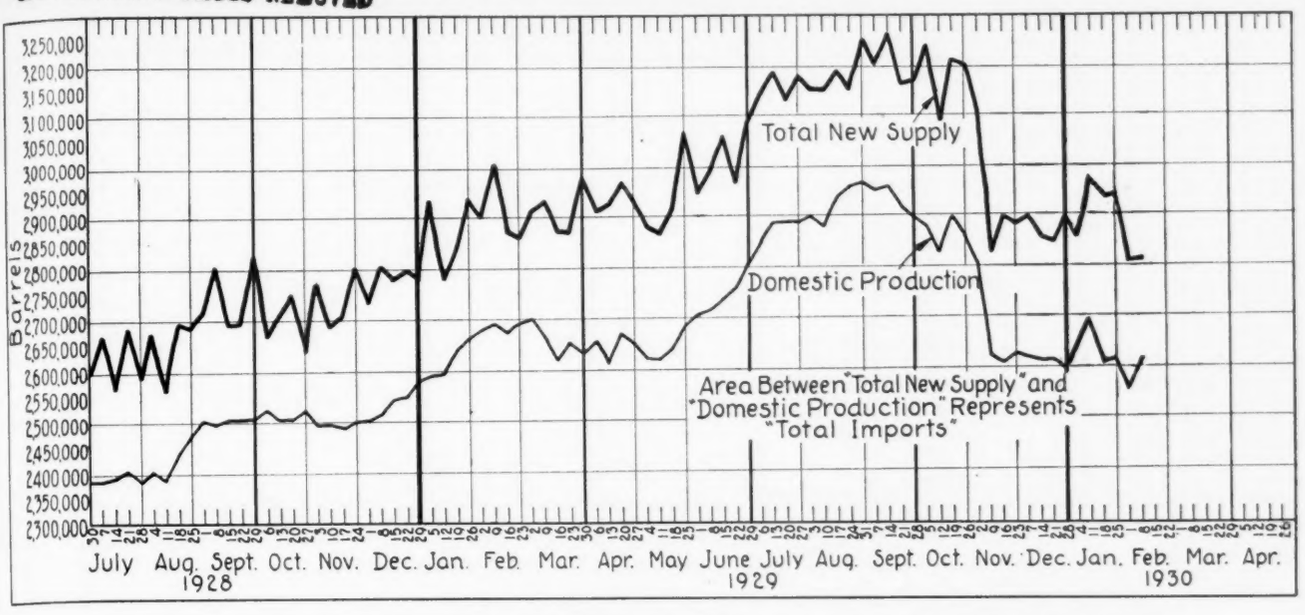
ADVERTISING PAGES REMOVED

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY	Feb. 8	Feb. 1
Production east of Rockies	1,905,900	1,884,400
Increase		21,500
Total production in U. S.	2,613,800	2,595,000
Increase		18,800
Crude oil imports	196,860	206,570
Decrease		9,710
Total crude supply	2,810,600	2,801,570
Increase		9,030

OKLAHOMA	Feb. 8	Feb. 1
Allen Dome	23,450	23,800
Asher	2,200	2,250
Blackwell	3,400	3,400
Bowlegs	21,050	22,200
Braman	3,600	3,600
Bristow-Slick	17,500	17,550
Burbank	16,550	16,900
Carr City	7,950	7,150
Cromwell	7,300	7,250
Cushing	14,250	14,250
Davenport	1,250	1,250
Duncan District	8,450	8,400
Earlsboro	30,000	28,100
East Earlsboro	53,250	40,050
Fox	1,300	1,250
Garber	4,550	4,600
Graham	3,700	3,750
Healdton	12,250	12,200
Hewitt	7,400	7,400
Hubbard	1,650	1,650
Little River	44,850	44,600
Little River, East	20,550	19,900
Logan County	13,100	13,950
Maud	6,000	6,550
Mission	12,800	14,400
North Okmulgee	11,300	11,300
Oklahoma City	69,650	57,150
Osage (outside Burbank)	26,400	26,450
Papoose	2,900	2,900
Pearson	800	750
Sasakwa	10,350	12,500
St. Louis	41,300	42,150
Scholem-Alechem	14,000	14,000
Searight	7,400	7,200
Seminole	22,150	23,100
Seminole, East	3,700	4,750
South Okmulgee	6,300	6,300
Thomas	550	550
Tonkawa	8,500	8,500
Wewoka	4,150	4,200
Yale-Jennings	8,650	8,600
Others	55,200	55,200
Total, Oklahoma	631,650	612,000
Increase		19,650

KANSAS		
Augusta-Fox Bush	2,900	2,950
Churchill	4,250	4,300
Eldorado-Towanda	13,150	13,150
Florence-Covert	900	900
Greenwood County	20,600	20,800
Oxford	3,150	3,150
Peabody-Elbing	3,050	3,000
Rainbow Bend	1,100	1,100
Russell	3,400	3,400
Sedgwick County	23,450	23,150
Others	34,500	34,500
Total, Kansas	110,450	110,400
Increase		50

NORTH LOUISIANA		
Bellevue	600	650
Caddo, light	9,550	8,900
Caddo, heavy	2,950	2,650
Cotton Valley	2,100	2,200
De Soto and Red River	2,350	2,350
Elm Grove	450	450
Haynesville	4,600	4,600
Homer	3,600	3,600
Pleasant Hill	900	900
Urania	5,150	5,150
Zwolle	4,000	4,050
Others	1,350	1,000
Total, North Louisiana	37,600	36,500
Increase		1,100

ARKANSAS		
Champagnolle	4,950	4,850
El Dorado	4,050	4,200
Lisbon	1,050	1,050
Nevada	1,100	1,100
Smackover, light	5,200	5,250
Smackover, heavy	41,100	39,550
Stephens	1,000	1,000
Others	250	250
Total, Arkansas	58,700	57,250
Increase		1,450

TEXAS (Outside Gulf Coast)		
Panhandle District		
Carson County	9,400	8,750
Gray County	56,300	54,900
Hutchinson County	24,800	23,000
Wheeler County	800	550
Others	500	600
Total, Panhandle Texas	91,800	87,800
Increase		4,000
North Texas		
Archer County	17,800	17,600
Burkburnett	8,200	8,200
Electra	11,500	11,550
Iowa Park and K.M.A.	5,200	5,100
Montague-Cooke	11,500	11,200
Wilbarger	26,100	25,900
Others	1,500	1,500
Total, North Texas	81,850	81,050
Increase		800
West Central Texas		
Brown County	8,900	9,600
Coleman County	5,600	6,700
Callahan County	3,600	3,500
Eastland-Desdemona	6,050	6,100
Jack County	4,600	4,500
Palo Pinto County	600	550
Shackelford County	9,000	9,300
Stephens County	5,300	5,500
Throckmorton County	700	600
Young County	8,100	7,800
Others	1,400	1,800
Total, West Central Texas	53,850	55,950
Decrease		2,100
West Texas		
Crane and Upton Counties	45,850	45,350
Crockett County	2,050	2,100
Howard County	38,350	39,300
Jones County	2,300	2,200
Mitchell and Scurry Counties	2,450	2,300
Pecos County	7,200	7,600
Reagan County	17,050	16,500
Winkler County	88,600	89,800
Yates	130,650	134,300
Balance		
Others	3,800	3,350
Total, West Texas	338,300	342,800
Decrease		4,500
EAST CENTRAL TEXAS		
Boggy Creek	3,700	3,900
Corsicana-Powell	5,850	6,000
Currie	400	400
Mexia	4,700	4,750
Nigger Creek	250	250
Richland	250	250
Van Zandt	6,800	4,800
Wortham	900	900
Total, East Central Texas	22,850	21,250
Increase		1,600
SOUTHWEST TEXAS		
Dale	300	300
Darst Creek	15,500	15,000
Laredo District	8,700	8,850
Luling	10,500	10,400
Lytton Springs	900	900
Salt Flat	27,900	27,500
Somerset	1,500	1,500
Others	2,750	2,600
Total, Southwest Texas	68,050	67,050
Increase		1,000
Total, Texas (Outside Gulf Coast)	656,700	655,900
Increase		800

GULF COAST	Coastal Texas	
Barbers Hill	25,650	23,900
Batson	1,100	1,100
Big Creek	4,500	4,300
Blue Ridge	1,950	1,850
Boling	1,000	1,000
Damon Mound	500	500
Fannett	1,400	1,500
Goose Creek	4,800	4,750
Hull	9,100	10,500
Humble	16,400	14,600
North Dayton	1,200	1,200
Orange County	2,600	2,550
Pierce Junction	11,100	12,350
Port Neches	1,600	1,900
Raccoon Bend	12,050	12,000
Refugio County	30,400	26,600
Saratoga	1,000	1,000
Somerville	1,650	1,600
Sour Lake	2,450	2,450
South Liberty	6,450	7,150
Spindletop	19,100	19,500
Sugarland	12,100	11,900
West Columbia	6,000	6,100
Others	4,300	3,700
Total, Coastal Texas	178,400	174,000
Increase		4,000
COASTAL LOUISIANA		
East Hackberry	1,400	1,500
Old Hackberry	1,700	1,300
Edgerly	600	800
Evangeline	1,200	900
Lockport	2,950	3,150
Sorrento Dome	100	100
Sulphur Dome	5,300	5,100
Vinton	3,900	3,800
Others	3,950	4,400
Total, Coastal Louisiana	21,100	21,050
Increase		50
Total, Gulf Coast	199,500	195,050
Increase		4,450

ROCKY MOUNTAIN		
Wyoming		
Big Muddy	2,000	2,000
Elk Basin	750	800
Grass Creek	2,000	1,900
Labarge	2,350	2,350
Lance Creek	200	200
Lost Soldier	3,300	3,250
Oregon Basin	3,850	3,850
Rock Creek	2,400	2,300
Salt Creek	29,200	33,550
Others	3,600	3,800
Total, Wyoming	49,650	54,000
Decrease		4,350
Montana		
Cat Creek	1,200	1,150
Pondera	2,100	2,150
Sunburst	5,950	5,950
Others	50	100
Total, Montana	9,300	9,350
Decrease		50
Colorado		
Florence	500	400
Fort Collins	1,800	1,800
Moat (Craig)	1,100	1,000
Others	1,650	1,700
Total, Colorado	5,050	4,900
Increase		150
New Mexico		
Artesia	750	750
Balance Lea & Eddy Counties	7,000	7,650
Hogback	400	400
Rattlesnake	1,100	550
Table Mesa	100	100
Others	950	950
Total, New Mexico	10,300	10,400
Decrease		100
Total, Rocky Mountain	74,300	78,650
Decrease		4,350

CALIFORNIA		
Dominguez	10,500	10,000
Elwood-Goleta	33,800	34,500
Huntington Beach	41,000	41,000
Inglewood	22,500	22,500
Kettleman Hills	14,000	14,000
Long Beach	109,000	106,500
Midway Sunset	75,000	75,000
Santa Fe Springs	162,500	167,200
Seal Beach	29,500	29,500
Ventura Avenue	51,100	51,400
Others	159,000	159,000
Total, California	707,900	710,600
Decrease		2,700
EASTERN		
(Not including Michigan)	123,000	123,900
Decrease		900
MICHIGAN		
Mt. Pleasant	8,000	8,350
Muskegon	5,800	6,150
Saginaw	200	250
Total, Michigan	14,000	14,750
Decrease		750

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations, Week Ended February 7 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended Feb. 7
Plants Reporting.....	12	29	25	15	12	93
Da. Av. Cap. (Bbls.)..	92,000	160,200	86,600	83,000	54,900	476,700
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs..	52,903 — 3.8	98,825 — 5.7	58,949 + 7.7	36,354 — 14.5	54,728 — 15.4	301,759 — 6.3
Da. Av. Other Oils....	5,993 — 6.0	4,446 — 17.0	2,465 — 48.1	1,387 — 0.4	2,055	16,346 — 5.6
GASOLINE—Gallons						
Stocks, Jan. 31.....	28,245,000	72,921,000	23,212,000	12,812,000	14,115,000	151,305,000
Prod. 1-31 to 2-7.....	8,641,000 — 7.3	13,753,000 — 14.2	7,963,000 + 13.7	3,628,000 — 3.1	4,942,000 — 13.0	38,927,000 — 6.8
Ship. 1-31 to 2-7.....	8,731,000 + 0.8	14,213,000 + 12.7	7,523,000 + 1.6	5,642,000 + 42.7	4,886,000 + 18.6	40,995,000 +11.5
Stocks, Feb. 7.....	28,155,000 — .3	72,461,000 — 0.6	23,652,000 + 1.9	10,798,000 — 15.7	14,171,000 + 0.4	149,237,000 — 1.4
Ratio Sales to Prod...	101.0%	103.3%	94.5%	155.5%	98.9%	105.3%
KEROSENE—Gallons						
Stocks, Jan. 31.....	11,986,000	8,104,000	2,919,000	33,000	2,002,000	25,044,000
Prod. 1-31 to 2-7.....	1,737,000 + 22.2	1,966,000 — 21.9	1,480,000 — 0.3	13,000 + 30.0	493,000 — 31.1	5,689,000 — 7.5
Ship. 1-31 to 2-7.....	2,752,000 + 18.7	2,843,000 + 48.5	1,292,000 + 11.2	5,000	255,000 — 35.1	7,147,000 + 17.4
Stocks, Feb. 7.....	10,971,000 — 8.5	7,227,000 — 10.8	3,107,000 + 6.4	41,000 + 24.2	2,240,000 + 11.9	23,586,000 — 5.8
Ratio Sales to Prod...	158.4%	144.6%	87.3%	38.5%	51.7%	125.6%
STOVE DISTILLATE—Gallons						
Stocks, Jan. 31.....	2,644,000	4,655,000	859,000	198,000	107,000	8,463,000
Prod. 1-31 to 2-7.....	395,000 — 31.1	730,000 — 36.1	168,000 — 50.3	82,000 — 20.4	133,000 + 30.4	1,508,000 — 33.2
Ship. 1-31 to 2-7.....	591,000 — 9.1	1,111,000 — 3.9	223,000 — 40.7	98,000 — 14.8	161,000 + 24.8	2,184,000 — 10.0
Stocks, Feb. 7.....	2,448,000 — 7.4	4,274,000 — 8.2	804,000 — 6.5	182,000 — 8.1	79,000 — 26.2	7,787,000 — 8.01
Ratio Sales to Prod...	149.6%	152.2%	132.7%	119.5%	121.0%	144.8%
GAS OIL—Gallons						
Stocks, Jan. 31.....	4,459,000	36,718,000	2,076,000	10,887,000	4,438,000	58,578,000
Prod. 1-31 to 2-7.....	649,000 — 37.4	3,553,000 + 13.7	971,000 — 4.7	—232,000	2,608,000 + 8.4	7,549,000 — 10.2
Ship. 1-31 to 2-7.....	1,111,000 + 1.5	4,989,000 + 44.1	769,000 — 44.7	1,263,000 + 15.7	1,926,000 — 9.0	10,058,000 + 9.9
Stocks, Feb. 7.....	3,997,000 — 10.4	35,282,000 — 4.0	2,278,000 + 9.7	9,392,000 — 13.7	5,120,000 + 15.4	56,069,000 — 4.3
Ratio Sales to Prod...	171.2%	140.4%	79.2%	.....	73.8%	133.2%
FUEL OIL—Gallons						
Stocks, Jan. 31.....	9,827,000	28,053,000	69,141,000	11,837,000	25,563,000	144,421,000
Prod. 1-31 to 2-7.....	5,091,000 + 6.8	4,426,000 — 27.8	7,029,000 + 0.5	5,513,000 — 10.4	5,428,000 — 6.3	27,487,000 — 7.9
Ship. 1-31 to 2-7.....	4,940,000 + 8.3	6,089,000 — 10.0	7,528,000 — 19.3	4,919,000 — 13.8	5,321,000 + 7.2	28,797,000 — 8.1
Stocks, Feb. 7.....	9,978,000 + 1.5	26,390,000 — 5.9	68,642,000 — 0.7	12,431,000 + 5.0	25,670,000 + 0.4	143,111,000 — 0.9
Ratio Sales to Prod...	97.0%	137.6%	107.1%	89.2%	98.0%	104.8%

Gasoline Produced by Various Methods, Week Ended February 7

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run.....	4,755,000	55.0	9,449,000	68.7	5,647,000	70.9	3,286,000	90.6	1,856,000	37.6	24,993,000	64.2
Cracked.....	2,471,000	28.6	3,383,000	24.6	1,326,000	16.7	92,000	2.5	2,557,000	51.7	9,829,000	25.2
Natural.....	1,415,000	16.4	921,000	6.7	990,000	12.4	250,000	6.9	529,000	10.7	4,105,000	10.6
Total.....	8,641,000		13,753,000		7,963,000		3,628,000		4,942,000		38,927,000	

+ or — columns are % change over previous week.

Gasoline Stocks Cut When Demand Increases

Staff Special—By Telegraph
TULSA, Okla., Feb. 10

GASOLINE shipments from the Mid-Continent refineries reporting weekly operations to this publication increased 4,200,000 gallons the first week in February. Increase due partly to the first of the month buying and also to milder weather in the middle west.

Gasoline production meanwhile was 2,800,000 gallons lower than for the previous week due to reduction of 20,000 barrels in the daily average crude charges.

Gasoline stocks were reduced 2,000,000 gallons. Reductions were made in Oklahoma, Kansas and West Texas, but shipments had increased in every district.

Reduction in kerosene production and an increase of 1,000,000 gallons in shipments resulted in stock reduction of 1,400,000 gallons. Stocks were

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Feb. 7. Change in stocks figures from Jan. 10.

GASOLINE

	Gallons
Production	165,002,000
Shipments	148,044,000
Net change in stocks	+16,958,000
Ratio sales to production	89.7%

KEROSENE

Production	22,184,000
Shipments	26,307,000
Net change in stocks	—4,123,000
Ratio sales to production	118.6%

STOVE DISTILLATE

Production	8,915,000
Shipments	10,661,000
Net change in stocks	—1,753,000
Ratio sales to production	119.6%

GAS OIL

Production	31,794,000
Shipments	34,706,000
Net change in stocks	—2,912,000
Ratio sales to production	109.2%

FUEL OIL

Production	117,141,000
Shipments	118,368,000
Net change in stocks	—1,227,000
Ratio sales to production	101.0%

reduced in Oklahoma and Kansas.

Gas oil stocks were reduced with production lower and shipments higher for the week. Fuel oil stocks also were reduced although shipments were lower than in the previous week.

Housewarming Planned By Spencer Pet. Co.

CHICAGO, Feb. 8.—Spencer Petroleum Co., chicago will hold its annual Valentine's Day housewarming on Friday, Feb. 14, at its offices at 178 W. Adams St.

The feature of the housewarming this year will be an "Oil Industry Bridge Tournament." It will be a progressive, 10-table affair and in the words of Mr. Spencer, "is open to any oil man who thinks he can play bridge." First prize will be a silver loving cup. Other prizes will also be given. Refreshments will be served to both combatants and "kibitzers."

Shaffer Promotes Marketing Members

CHICAGO, Feb. 7.—Changes and promotions in the distributing division of the Shaffer Oil & Refining Co. here include the appointment of R. J. Kelly as assistant manager of distributing divisions. Mr. Kelly was formerly manager of the Home Oil Co.

E. J. Gregory has been placed in charge of sales promotion work.

Other changes include: T. B. Murphy, formerly fuel oil manager, of the northern division; C. J. Foster, in charge of plant and motor equipment; F. R. Seleine, transferred to the wholesale tank car department; L. P. Craig, credit manager; and A. L. Treasher, auditor.

Connecticut Jobber Building Plants

HARTFORD, Conn.—A bulk plant was opened during February here by Walter H. Goodrich & Co., Inc., New Haven. The plant has three 35,000 gallon tanks and loading rack tanks of 100,000 gallon capacity.

A similar plant is being opened in Providence, R. I. R. F. Pearson is manager of the Hartford plant. The company has been in business since 1904 and is one of the largest Independent jobbers in Connecticut.

Walter McKee Has a Son

CHARLESTON, W. Va.—The birth of a son to W. Walter McKee, sales manager of the Elk Refining Co. here, was announced by Mr. McKee to NATIONAL PETROLEUM NEWS in this manner:

"New salesman arrives to help Dad: William W. McKee, Jr., 8¼ pounds, Thursday evening, Feb. 6. When he cries it is oil right, sounds like a big oil man making a speech."

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You'll like everything about Albany Victors. Their absolute hygienic safety. Their generous size. The speed with which they soak up the water. But most of all you'll like their double-duty-texture—soft enough for hands and face, yet tough and strong enough for the heaviest job you want to give them.

Install Albany Victor towels for real economy. Your men and your customers will notice—and appreciate—these better towels. And you will find Albany Victor towels real money savers—every day in the year. Let us show you how you can cut towel bills with Albany Victor towels. Fill out the coupon and mail today for prices.

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And that's the kind of feeling that comes to a stranger when he sees a dealer selling and displaying an old familiar product that was advertised and sold in his old home town.

Newcomers in any community become customers of the dealer who carries *nationally advertised oil*—they may not know the dealer but they *know* the motor oil—they have confidence in it—they have friendship for it. National advertising for a product brings new business to the dealer who carries it.

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Refinery - Tank Wagon Markets

National Petroleum News

Refinery Activity at Standstill; Prices Show Conflicting Trends

CLEVELAND, Feb. 11

REFINED oil tank car markets displayed conflicting tendencies in various sections of the country last week. Activity as a whole was practically at a standstill but prices in some districts gave evidence of having met their resistance points and a better feeling was quite obvious among traders in those districts.

Retail markets were decidedly unsettled. In isolated instances, localities where prices had been below the normal schedules of the Standard companies operating in those localities, were returned to normal, but price wars cropped up in as many, if not more, new localities with the result that reductions were somewhat in the majority.

A 1 to 2 cent cut in tank wagon and service station prices generally through the Rocky Mountain states by Continental Oil Co. on Feb. 8 was the only reduction which covered any large territory.

Prominent among the local cuts, however, was the Detroit reduction where tank wagon was cut 1 cent, service station 2 cents, making both prices the same—18.8 cents. Standard of Indiana revised its Q. D. A. at this point to give one year contract customers a 4 cent margin with non-contract customers getting only 3 cents. The service station price at Wichita, Kans. also was reduced 4 cents to 14.8 cents, placing it 3 cents under the posted tank wagon at this point.

Gasoline tank car prices along the Atlantic and Pacific seaboards continued to seek lower levels. In middle western refining districts, however, there were numerous indications that buyers felt prices had about reached bottom. An appreciable improvement was noted in buying and more of a disposition on the part of jobbers to step in and take advantage of present prices to fill up their storage. Stocks were reduced at many mid-Continent refineries in the first week of the month.

Milder weather slowed up the demand for home burner oils considerably throughout the country and prices for these oils were lower. Kerosene inquiries were better, particularly in the middle west, where jobbers were said to be preparing for the spring plowing season.

The purchase of 1,000,000 gallons of kerosene in north Texas to move to the Gulf for export, and an inquiry for 500,000 gallons of U. S. Motor gasoline in the same district, were bright points in bulk markets. On the other hand, the appearance of large quantities of distress oils on the Pacific coast had a tendency to offset any optimism over improvement in the Mid-Continent situation.

Chicago Markets Continue to Mark Time

Staff Special
CHICAGO, Feb. 8.

THE first week in February found the Chicago resale market still marking time. Spot buying of all products was mostly of a hand-to-mouth nature. The mild weather which prevailed over the middle west the past week was a big factor in holding down demand for the zero burning oils. On the other hand it was still too early to expect any appreciable increase in gasoline consumption.

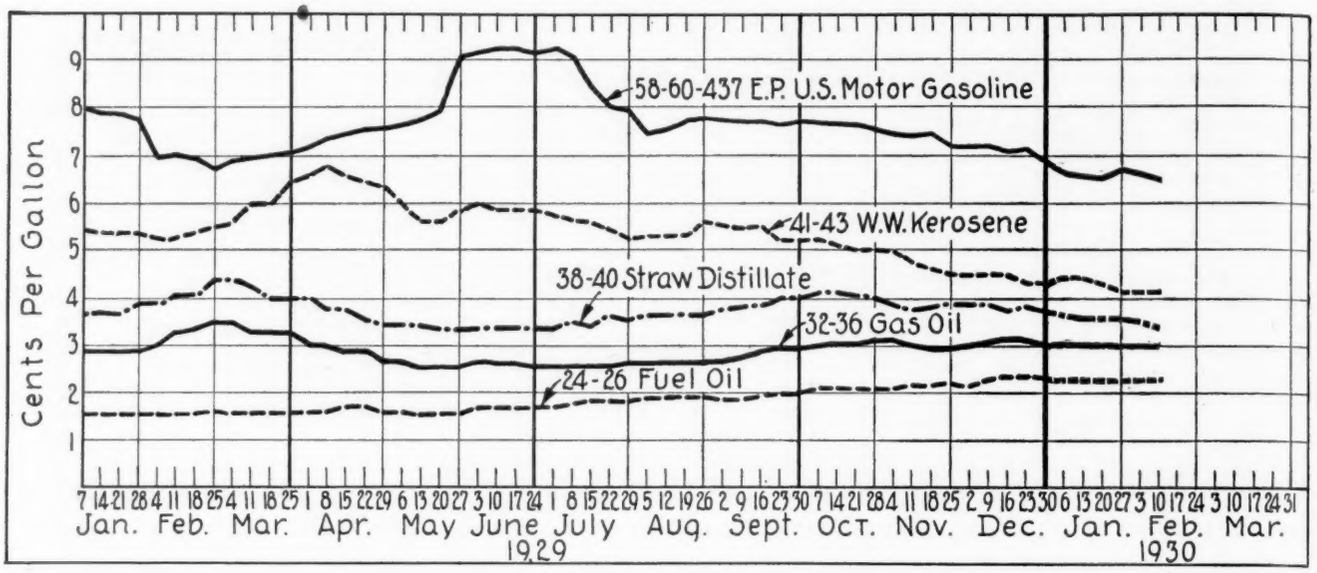
Many sellers reported they were receiving a goodly number of inquiries for kerosene for deferred shipment and also an increased number for prompt shipment, although actual sales were still not very heavy. Opinions were that jobbers were now willing to start buying to fill their storage in anticipation of a heavy spring demand. However, there was little change noted in spot prices. The 41-43 w.w. grade continued to be offered at 4 to 4.25 cents, but several marketers reported it was harder to buy good material for resale at under 4 cents.

The gasoline situation remained practically the same as in the previous week. Buying continued mostly on a hand-to-mouth basis and there was little change in selling prices. The bulk of sales of U. S. Motor reported on Feb. 1 were at 5.75 to 6.50 cents and this was also the case on Feb. 8. While there was also some U. S. Motor available at under the 5.75 cent price, there were not enough sales reported to be considered representative of the general market. Several carlot marketers, who have been selling Motor from Illinois refineries, for shipment into differential territory, reported they had very little of this goods left and they were now handling mostly Mid-Continent material.

Most Chicago marketers quoted U. S. Motor, originating in West or North Texas and Oklahoma, at 5.75 cents and up, with occasional sales reported at 5.625 cents. Sales of U. S. Motor gasoline, for delivery over the rest of February and in March, were reported at around present price levels, but many sellers said they were not quoting for future shipment as the market might take an upward turn toward the end of February. Refiners' quotations on U. S. Motor continued to range from 5.75 to 6.50 cents.

Considerable interest was evidenced in the retail gasoline price reduction at Detroit and in the wider dealers' margins to be given there. Due to the wide spread between the spot tank car price and the retail price, and also to the low freight rates from Ohio, Illinois and Indiana refineries into the Detroit territory, this point has been used as a dumping ground for distress

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
58-60-437 E.P. U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

gasolines. While this reduction was local to Detroit, several Chicago sellers expressed the opinion that unless the spot market took an upward turn there would be more price cutting going on over the territory, which would probably lead to a general tank wagon reduction.

Most of the Chicago furnace oil distributors said their tank wagon business was fairly active despite the mild weather, but it was not heavy enough to bring them into the spot tank car market to any great extent. However, several carlot marketers said their demand for furnace oil from distributors outside of Chicago was still fairly active and they were able to obtain better prices for goods moving to these points than to Chicago buyers.

Spot market prices of distillate and fuel oils generally were lower during the week, while there was little change in gas oils. In many cases, a good grade of 32-36 straw zero gas oil was bringing the same price as a straw distillate. Distillate was offered freely and the 38-40 straw was available at 3.25 cents early in the week. No sales were reported under this figure and many of the trade were of the opinion that this price was about "bottom," inasmuch as there was now more interest in kerosenes.

Unsettled weather, with temperatures mostly near normal, was the Chicago weather bureau's forecast, for the next week in the Standard of Indiana territory.

Shaffer Opens Export Offices in N. Y.

CHICAGO, Feb. 8.—Development of European and South American business of the Shaffer Oil & Refining Co. has necessitated the opening of a New York office. Space has been taken at 111 Broadway adjoining the offices of H. M. Byllesby & Co., parent company.

J. Harvey Jones is in charge of the office. Mr. Jones has been connected with the oil export business for the past 10 years. He was with the Swann-Finch Oil Co. and more recently in charge of export sales for the Beacon Oil Co.

Late Market Changes

NEW YORK.—On Feb. 11 Standard Oil Co. of New York reduced its tank wagon price only of gasoline 1 cent throughout its territory.

This makes a spread of 2 cents between tank wagon and service station prices, instead of 1 cent posted Feb. 1.

Great Britain exported 12,000 barrels of crude oil to Finland during 1928, compared with 19,000 barrels exported by the United States.

Shipments From Southern California

LOS ANGELES, Feb. 6.—Shipment of bulk petroleum from Southern California ports for week ending Feb. 1, were as follows (Bbls.):

Destination	Crude	Gasoline	Diesel	Distillate	Kerosene	Fuel	Gas-Oil
Pacific For.	125,779	4,757	6,579	.....	.....	195,188	.....
Atlantic Dom.	.....	147,198	.....	.....	.....	.....	.....
Atlantic For.	.....	263,296	33,064	.....	.....	.....	69,197

Prices 10 Years Ago
Feb. 9, 1920

	Oklahoma	Penna.
58-60 U. S. Motor	20.25–20.50c	21.25–22.00c
80-84 Natural	22.75–23.00c	.....
Kerosene (41-43 Okla.; 47 w. w. Pa.)	11.25–11.50c	14.75–15.00c
Fuel Oil (24-26 Okla.; 38-40 Pa.)	$2.10–$2.20	9.50c
Crude (Okla. 35-35.9)	$3.00	$5.50
Chicago tank wagon		22.00c

Prices A Year Ago
Feb. 11, 1929

	Oklahoma	Penna.
58-60 U. S. Motor	7.0000c	9.25–9.75c
Grade A Natural	7.375c	.....
Kerosene (Okla. 41-43; Pa., 47 w. w.)	5.25c	7.50–7.75c
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.625–$0.675	5.00–5.25c
Crude (Okla. 35-35.9)	$1.17	$4.00
Chicago tank wagon		14.00c

Mid-Continent Refinery Markets

Better Inquiry Checks Falling Prices

Staff Special
TULSA, Feb. 8

MILDER weather in the Middle West with a well defined increase in demand gave Mid-Continent gasoline and kerosene markets a better undertone during the first week of February.

Natural gasolines responded both to the better refined gasoline market, and to the usual first of the month buying. Furnace oils failed to gain any ground while fuel oils were steady in demand and price. Other commodities were unchanged.

Several refiners late in the week predicted a sizable increase in gasoline shipments and a possible draft on stocks. While the break in the weather accounted for much of the buying, there undoubtedly were many jobbers who put at least a portion of their purchases in storage.

One or two of the larger jobbers were known to be buying for storage. Several marketers were known to have advised their customers to buy now for storage, even recommending that they borrow the money if necessary. The majority of both buyers and sellers in this district apparently were of the opinion prices were virtually on bottom and any increase in buying would start prices upward.

The representative of one large jobbing company was quoted as saying his company was preparing to fill its storage, being convinced that any percentage in savings which might come from lower prices would not be sufficient to offset the possibility of an advance in prices before the company had obtained its requirements.

The uncertain crude situation continued to have the most depressing effect on the entire market. Many refiners were of the opinion a reduction by Prairie Oil & Gas Co. and Sinclair Crude Oil Co. would result in an immediate tank wagon and service station reduction in Standard of Indiana territory. But even a reduction, if the crude tangle became ironed out, would put the market on a sounder basis again, many refiners believed, and it was the consensus that any reduction already had been discounted and that prices would not be affected.

If any sizable draft on gasoline stocks at refineries should be made at the present time it would mean primarily a transfer of gasolines from refiners' tanks to those of jobbers. Gasoline consumption was not thought by the majority of sellers to have increased sufficiently as yet to push shipments high enough to keep pace with current production.

Kerosenes

Purchase of approximately a million gallons of kerosene for export from north Texas refiners around the first of the month became known late in the week and gave the market some strength. Stocks were reported comparatively scarce in north Texas.

The export kerosene was reported to have been bought at 3.625 to 3.875 cents, but reports from north Texas Feb. 8 indicated there was no oil available there under 4 cents and several refiners had advanced quotations 0.25 cent or more.

Refiners in Oklahoma and Kansas reported an improvement in demand from the domestic trade. This was taken as an indication that jobbers were buying at present low levels preparatory to the spring demand which many believe is just around the corner.

Louisiana and Arkansas refiners reported they had no difficulty moving current kerosene production and their prices have been somewhat higher than the other districts for some weeks.

Gas and Fuel Oils

Only minor changes were noted in gas oil and fuel oil prices during the week. Demand for these oils continued to hold up well, a majority of sellers reported. Inquiries for over the month were about on a parity with those for January delivery. Prices were firmer in the Louisiana and Arkansas districts due to new railroad contracts, but were slightly easier in north Texas due to the relatively higher cold test. Low cold test oils made in Oklahoma continued to be in good demand.

Neutral Oils, Cylinder Stocks

No changes were noted in neutral oils and cylinder stocks prices. Some inter-refinery buying was reported during the week. Several reports were heard of lower quotations for 150-160 D 210 Bright Stock but a check of the field failed to reveal any quotations under 37 cents a gallon.

The reports of the lower prices probably originated as a result of one refiner's offer of this grade of oil at lower prices because the oil had a calcium cloud. He quoted the

(*Continued on Page* 102)

3 STYLES
1 With attached visor, and *flexible* metal spout. (Shown above)

2 With attached visor and *rigid* metal spout.

3 *Plain,* with non-spill and pouring top.
Three Sizes
1, 2 and 4 quarts.

No Seams
to come apart or leak
. . . in the New Brookins "Seamless"

NOT just another measure. The picture shows the difference. First, the body is *seamless.* No joints to come apart or leak. No corners, cracks or crevices to gather dirt and undrained oil. That's why you can clean it as easy as you'd clean a teacup. And that's why *one* Brookins "Seamless" serves for alcohol, oil and water.

Then there's the man-size handle. Heft it and feel the perfect balance. Now fill the measure up to the gauging line. Oil *can't* slop over. The non-spill pouring top takes care of that.

And here's the big news! The new Brookins "Seamless" is the *lowest-priced measure we ever made.* It's worth knowing more about. Let us send you full information and price lists. Mail the coupon *now.*

Brookins
SERVICE STATION EQUIPMENT

"AN HONEST MEASURE FOR HONEST OIL"

MAIL THIS NOW
THE BROOKINS MFG. CO.,
724 Hawthorne St., Dayton, Ohio.
Please send price list and detailed description of the new Brookins "Seamless," without cost or obligation. 9-33
Name and Address

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect February 10

	Price F.O.B. Group 3		*Price F.O.B. Point of Origin*		*If for Particular Destination*
Oklahoma	6.5092	(Wt. Avg.)	6.5092	(Wt. Avg.)	.....
Kansas	6.50	.....	.....	.....	S. O. Neb. & Indiana Territory, etc.
Kansas	.....	.....	No sales reported		Kansas only.
North Texas	5.75–6.00	.....	5.75–6.00	.....	.....
West Texas	5.75–6.00	.....	5.75–6.00	.....	.....
Louisiana-Arkansas	5.75–6.25	.....	.....	.....	Michigan, Ohio and Indiana.
Louisiana-Arkansas	.....	.....	6.50	.....	State or differential haul.
Indiana-Illinois	6.00–6.50	.....	.....*	.....	S. O. Indiana territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Chicago Resale Market

CHICAGO, Feb. 8.

THE Chicago market marked time last week. Mild weather hampered demand for furnace oil and gasoline continued inactive. More inquiries were reported for kerosenes both for spot and deferred shipment; no change was apparent in prices. Spot prices for distillate and fuel oil were lower. Gasolines were generally unchanged. Sales of U. S. Motor largely were at 5.75 to 6.50, f.o.b. Group 3, regardless of where the goods were to be shipped from. Carlot marketers were offering only small quantities of differential territory gasolines.

Following prices represent sales made on a Group 3 freight basis, although shipments may originate in other refining districts, such as North Texas, West Texas, Arkansas, Louisiana, Illinois, Indiana, Kentucky, etc.

	Prices Feb. 10	**Prices Feb. 3**	**Prices Jan. 27**
58-60 U. S. Motor, 437 e.p.	5.75 – 6.50	5.75 – 6.50	5.875– 6.50
60-62 437 e.p. gasoline	5.875– 6.50	5.875– 6.50	6.00 – 6.50
60-62 400 e.p. gasoline	6.25 – 6.75	6.25 – 6.75	6.375– 6.75
64-66 375 e.p. gasoline	7.25 – 7.75	7.25 – 7.75	7.375– 7.875
68-70 350-360 e.p. gasoline	7.75 – 8.00	7.75 – 8.125	7.75 – 8.125
41-43 w.w. kerosene	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
42-44 w.w. kerosene	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75
38-40 straw distillate	3.25 – 3.50	3.375– 3.625	3.50 – 3.75
32-36 ordinary dark gas oil	2.625– 2.75	2.625– 2.875	2.625– 2.875
32-36 dark zero gas oil	3.00 – 3.125	3.00 – 3.125	3.125– 3.25
32-36 straw zero gas oil	3.25	3.25	3.25 – 3.375
28-30 zero fuel oil (per bbl.)	$1.125–$1.175	$1.15 –$1.20	$1.15 –$1.225
28-30 fuel oil (per bbl.)	$1.075–$1.10	$1.075–$1.125	$1.075–$1.125
24-26 fuel oil (per bbl.)	$0.925–$1.00	$0.95 –$1.025	$0.95 –$1.025
18-22 fuel oil, low sulfur (per bbl.)	$0.80 –$0.825	$0.80 –$0.85	$0.825–$0.85
18-22 fuel oil, high sulfur zero (per bbl.)	$0.775–$0.825	$0.775–$0.85	$0.825–$0.85

Weighted Average Prices

OKLAHOMA

	Feb. 10		**Feb. 3**		**Jan. 27**	
	No. of cars	**Price**	**No. of cars**	**Price**	**No. of cars**	**Price**
58-60 U. S. Motor, 437 e.p.	27	6.5092	41	6.6280	42	6.5704
60-62 437 e.p. gasoline	2	6.3750	3	6.2500	7	6.5178
60-62 400 e.p. gasoline	1	6.7500	3	7.1667	9	6.9444
64-66 375 e.p. gasoline	1	7.7500	No sales reported		1	8.0000
*58-60 437 e.p. gasoline	..	5.75–6.50	..	5.75–6.50	..	5.875–6.50

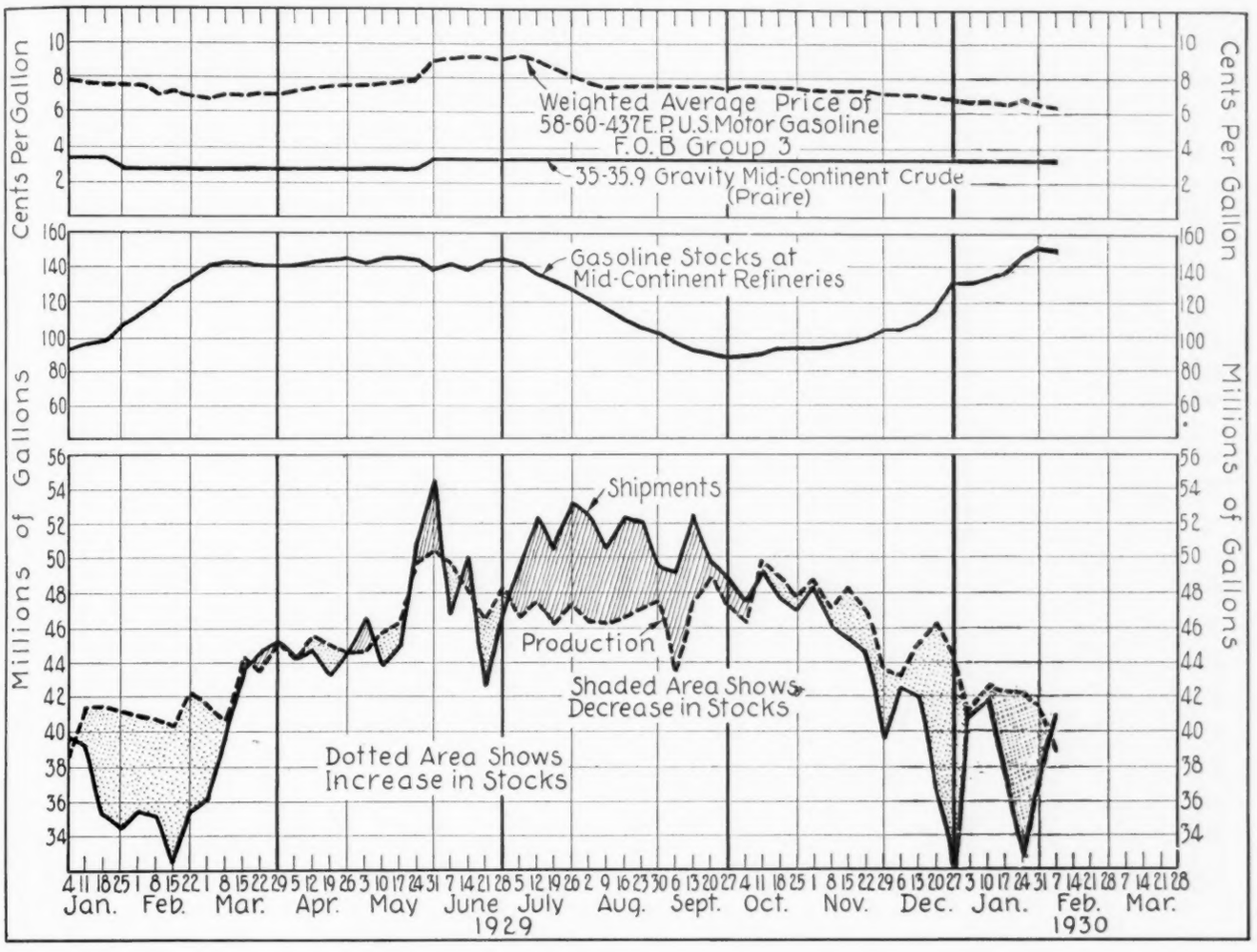
KANSAS

	Feb. 10		**Feb. 3**		**Jan. 27**	
	No. of cars	**Price**	**No. of cars**	**Price**	**No. of Cars**	**Price**
58-60 U. S. Motor, 437 e.p.	No sales reported		No sales reported		No sales reported	

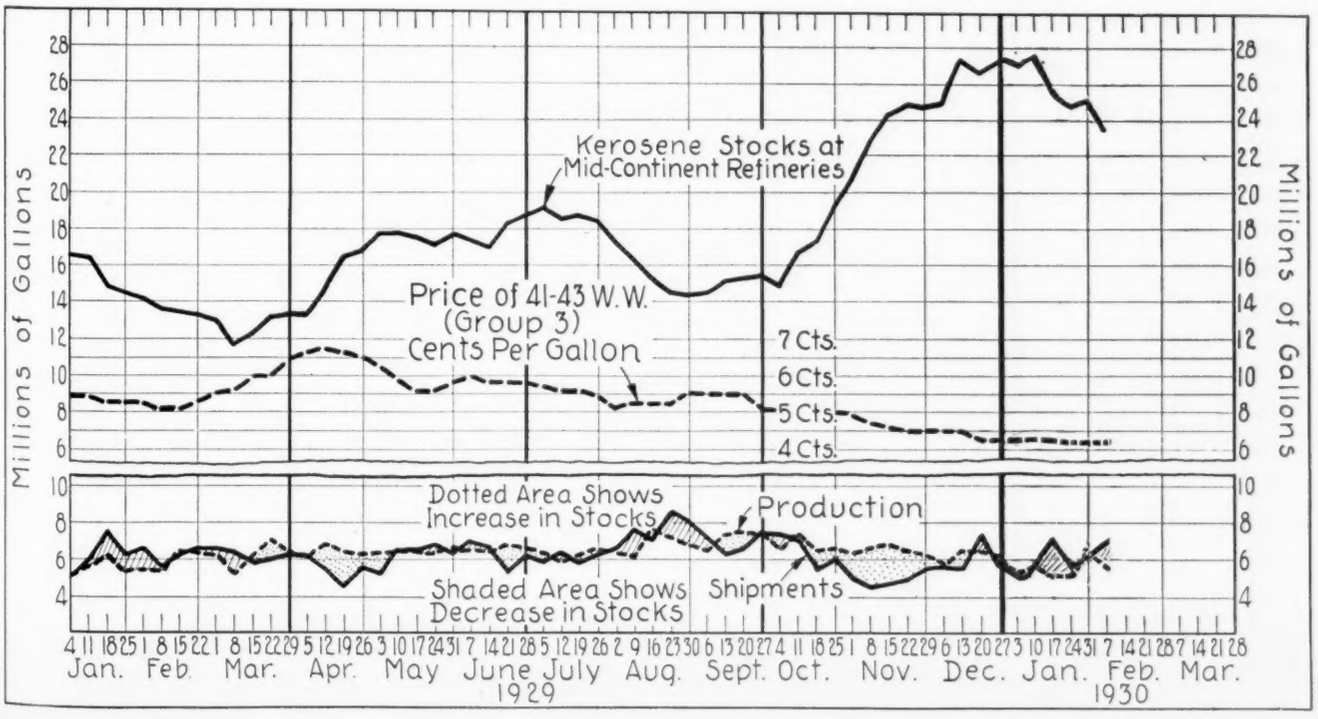
*Full U. S. Motor specifications not guaranteed. Prices represent both quotations and sales.

Barometer of Mid-Continent Refinery Market—Week Ending February 7

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Cents Per Gallon
Weighted Average Price of 58-60-437 E. P. U.S. Motor Gasoline F.O.B Group 3
35-35.9 Gravity Mid-Continent Crude (Praire)
Gasoline Stocks at Mid-Continent Refineries
Millions of Gallons
Shipments
Production
Shaded Area Shows Decrease in Stocks
Dotted Area Shows Increase in Stocks
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 90


Millions of Gallons
Kerosene Stocks at Mid-Continent Refineries
Price of 41-43 W.W. (Group 3) Cents Per Gallon
7 Cts.
6 Cts.
5 Cts.
4 Cts.
Dotted Area Shows Increase in Stocks
Production
Shaded Area Shows Decrease in Stocks
Shipments
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA	Prices Feb. 10	Prices Feb. 3	Prices Jan. 27
48-50 450 e.p. naphtha...	6.25 – 6.50	6.25 – 6.75	6.25 – 6.75
50-52 450 e.p. naphtha...	6.25 – 6.50	6.25 – 6.75	6.25 – 6.75
56-58 450 e.p. gasoline...	5.75 – 6.25	5.75 – 6.25	5.875– 6.25
58-60 450 e.p. gasoline...	5.75 – 6.25	5.75 – 6.25	5.875– 6.375
64-66 390 e.p. gasoline...	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
68-70 350-360 e.p. gasoline	7.875– 8.25	7.875– 8.25	7.875– 8.25
PENNSYLVANIA			
52-54 Naphtha.....	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
54-56 Naphtha.....	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
58-60 U.S. Motor 437 e.p.	7.50 – 7.75	7.625– 8.00	7.625– 8.00
60-62 400-410 e.p. gasoline	7.875– 8.25	8.00 – 8.50	8.00 – 8.50
64-66 390 e.p. gasoline....	8.25 – 8.75	8.25 – 8.75	8.25 – 8.75
68-70 350-360 e.p.....	9.00 – 9.75	9.00 –10.00	9.00 –10.00
OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)			
U. S. Motor Gasoline			
Ohio, delivery at any point.....	9.50	9.50	9.50
KANSAS (F. O. B. refinery Kansas destination)			
60-62 437 e.p. gasoline...	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
60-62 400 e.p. gasoline...	6.75 – 7.50	6.75 – 7.50	6.75 – 7.50
64-66 375 e.p. gasoline...	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00
NORTH TEXAS			
56-58 450 e.p. gasoline...	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
58-60 450 e.p. gasoline...	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
58-60 U.S. Motor 437 e.p.	5.75 – 6.00	5.75 – 6.00	5.875– 6.125
60-62 400 e.p. gasoline...	6.125– 6.50	6.125– 6.50	6.125– 6.50
64-66 390 e.p. gasoline...	6.875– 7.25	6.875– 7.25	6.875– 7.25
64-66 375 e.p. gasoline...	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
68-70 350-360 e.p. gasoline	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
****WEST TEXAS (F.o.b. West Texas refinery, for unrestricted shipment)**			
50-52 naphtha.....	5.25	5.25	5.25 – 5.50
58-60 437 e.p. gasoline...	5.50 – 5.75	5.50 – 6.00	5.75 – 6.00
58-60 U.S. Motor 437 e.p. gasoline.....	5.75 – 6.00	5.75 – 6.00	6.00
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	6.50	6.50	7.00
ARKANSAS (Ark., N. La. and Miss. destination)			
58-60 U.S. Motor 437 e.p.	6.50	6.50	7.00
CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)			
54-58 U.S. Motor 437 e.p.	8.50 – 9.00	8.50 – 9.00	8.50 –10.00
54-58 U.S. Motor, for outside state shipment....	6.50 – 7.25	6.50 – 7.25	6.50 – 7.50
58-61 375-400 e.p. gasoline	9.50 –10.00	9.50 –10.50	10.00 –11.00
42-45 Engine Distillate 445-480 e.p.....	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery.....	5.25 – 5.375	5.25	5.25
Grade A, 72-79.9, 90% Recovery.....	5.50 – 5.625	5.75	5.75
Grade BB, 84-92, 85% Recovery.....	4.25	4.00 – 4.25	4.25
Grade B, 76-83.9, 85% Recovery.....	4.25	4.25	4.25
Grade C, 80-92, 78% Recovery.....	4.00 – 4.125	4.00 – 4.125	4.125– 4.25
NORTH TEXAS (F. o. b. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery.....	5.25 – 5.375	5.00 – 5.25	5.25
Grade A, 72-79.9, 90% Recovery.....	5.50 – 5.625	5.75	5.75
Grade BB, 84-92, 85% Recovery.....	4.25	4.00 – 4.25	4.125– 4.25
Grade B, 76-83.9, 85% Recovery.....	4.25	4.25	4.25
Grade C, 80-92, 78% Recovery.....	4.00 – 4.125	4.00 – 4.125	4.125– 4.25

†Prices nominal ††Only one refiner quoting *Quotations only

NORTH LOUISIANA (F. o. b. Monroe District)	Prices Feb. 10	Prices Feb. 3	Prices Jan. 27
Grade AA.....	†5.50	†5.50	†5.50
Grade BB.....	†4.50	†4.50	†4.50
Grade C.....	†4.375	†4.375	†4.375
CALIFORNIA			
75-85, 375-390 e.p. blend	8.00 – 8.50	8.00 – 9.00	8.00 – 9.00

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene.....	5.875– 6.00	5.875– 6.125	5.875– 6.125
46 w.w. kerosene.....	6.00 – 6.25	6.25 – 6.50	6.25 – 6.50
47 w.w. kerosene.....	6.125– 6.50	6.25 – 6.75	6.25 – 6.75
300 mineral seal.....	6.75 – 7.00	6.75 – 7.25	7.00 – 7.50
OKLAHOMA			
41-43 w.w. kerosene.....	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
42-44 w.w. kerosene.....	4.375– 4.50	4.25 – 4.50	4.25 – 4.50
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene.....	4.125– 4.75	4.125– 4.75	4.125– 4.75
42-44 w.w. kerosene.....	4.375– 4.875	4.375– 4.875	4.375– 4.875
NORTH TEXAS			
40-42 w.w. kerosene.....	3.75 – 4.00	3.75 – 4.00	3.875– 4.00
41-43 w.w. kerosene.....	4.00	4.00	4.00 – 4.125
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
41-43 w.w. kerosene.....	4.75 – 5.00	4.75	5.00 – 5.25
42-44 w.w. kerosene.....	5.00 – 5.25	5.00 – 5.25	5.25
ARKANSAS (Ark., N. La. and Miss. destination)			
42-44 w.w. kerosene.....	5.25	5.00 – 5.25	5.25
CALIFORNIA			
38-40 w.w. kerosene.....	4.00 – 5.00	4.00 – 5.00	4.50 – 5.00

NEUTRAL OIL

PENNSYLVANIA			
Vis.		**(Viscosity at 70°F.)**	
200 No. 3 Assoc. Filt.....	25.00 –26.00	25.00 –26.00	25.00 –26.00
180 No. 3 Assoc. Filt.....	20.50 –22.00	20.50 –22.00	20.00 –22.00
150 No. 3 Assoc. Filt.....	16.00 –17.00	15.50 –17.50	16.00 –17.50
		(Non Viscous)	
34 Grav. 330-340 Flash..	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50

**OKLAHOMA				
Vis.	**Color**		**(Viscosity at 100°F.)**	
100—No. 2.....		6.00 – 7.50	6.00 – 7.50	6.00 – 7.50
150—No. 3.....		7.75 – 8.50	7.75 – 8.50	7.75 – 8.50
150—No. 4.....		6.75 – 8.00	6.75 – 8.00	6.75 – 8.00
180—No. 3.....		9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 4.....		8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
180—No. 5.....		8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
200—No. 3.....		11.00 –12.50	11.00 –12.50	10.50 –12.50
200—No. 4.....		10.00 –11.00	10.00 –11.00	10.00 –11.00
200—No. 5.....		9.50 –11.00	9.50 –11.00	9.50 –11.00
220—No. 3.....		12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4.....		12.00 –12.50	12.00 –12.50	12.00 –12.50
220—No. 5.....		11.00 –12.00	11.00 –12.00	11.00 –12.00
240—No. 3.....		13.00 –15.00	13.00 –15.00	13.00 –15.00
240—No. 4.....		12.00 –13.50	12.00 –13.50	12.00 –13.50
240—No. 5.....		11.00 –13.00	11.00 –13.00	11.00 –13.00
280—No. 3.....		16.00 –17.00	16.00 –17.00	16.00 –17.00
280—No. 4.....		14.00 –16.00	14.00 –16.00	14.00 –16.00
280—No. 5.....		13.00 –15.00	13.00 –15.00	13.00 –15.00

**Represents Both Sales and Quotations.

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL

Vis.	Color	Prices Feb. 10	Prices Feb. 3	Prices Jan. 27
		(Viscosity at 100°F., pour test 0)		
100	No. 2 Pale	6.50 – 7.00	6.00 – 6.50	6.00 – 6.50
200	No. 3 Pale	9.50 – 9.75	8.50 – 9.00	8.50 – 9.00
300	No. 3 Pale	10.75 –11.00	9.50 –10.00	9.50 –10.00
500	No. 3½ Pale	11.75 –12.00	10.50 –11.00	10.50 –11.00
750	No. 4 Pale	13.50 –13.75	12.00 –12.50	12.00 –12.50
1200	No. 5 Pale	16.00 –16.50	16.50 –17.00	.....
200	No. 5½ Red Oil	8.75 – 9.00	7.50 – 8.00	7.50 – 8.00
300	No. 5½ Red Oil	10.00 –10.25	8.50 – 9.00	8.50 – 9.00
500	No. 6 Red Oil	11.25 –11.50	9.50 –10.00	9.50 –10.00
750	No. 6 Red Oil	12.75 –13.00	11.50 –12.00	11.50 –12.00
1200	No. 5-6 Red Oil	15.00 –15.25	15.00 –15.50	.....

CALIFORNIA

Vis.	Color			
		(Viscosity at 100°F.)		
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50	11.50	11.50
300	No. 3	13.00	13.00	13.00
450	No. 3	15.50	15.50	15.50
550	No. 3	16.50	16.50	16.50
600	No. 3	17.00	17.00	17.00
200	No. 5	11.00	11.00	11.00
300	No. 5	12.00	12.00	12.00
400	No. 5	14.00	14.00	14.00
500	No. 5	15.00	15.00	15.00
600	No. 5	16.00	16.00	16.00
700	No. 7	18.00	18.00	18.00

CYLINDER STOCKS

**OKLAHOMA

190-200 Vis. D at 210° Brt. St.	41.00 –42.00	41.00 –42.00	41.00 –42.00
150-160 Vis. D at 210° Brt. St.	37.00	37.00	37.00
150-160 Vis. E 210° Brt. St.	35.00 –36.00	35.00 –36.00	35.00 –36.00
600 St. Ref. Olive Green	9.00 –10.00	9.00 –10.00	9.00 –10.00
600 St. Ref. Dark Green	9.00	9.00	9.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (A. S. T. M. Tests)

600 Steam Refined, filterable	23.50 –25.00	23.50 –25.00	23.50 –25.00
650 Steam Refined	29.50 –31.00	29.50 –31.00	29.00 –31.00
600 Flash	31.00 –33.00	30.50 –32.00	30.00 –32.00
630 Flash	35.00 –36.00	35.00 –36.00	35.00 –36.00
600 Warren E	30.50 –31.00	30.50 –31.00	30.50 –31.00
600 Oil City E	29.50 –30.00	29.50 –30.00	29.50 –30.00
600 D Filtered	34.50 –35.00	34.50 –35.00	35.00 –36.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	41.50 –42.00	41.50 –42.00	41.50 –42.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	40.00	40.00	40.00

WAX

PENNSYLVANIA (Per pound, New York)

122-124 white crude scale, a.m.p.	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
124-126 white crude scale, a.m.p.	3.00 – 3.125	3.00 – 3.125	3.125

**OKLAHOMA

124-126 White Crude Scale, a. m. p.	2.75 – 3.125	2.75 – 3.125	2.75 – 3.125

CALIFORNIA

White crude scale, per pound, ton lots, a.m.p.	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	4.75 – 5.00	4.75 – 5.00	4.625– 5.00
30-34 fuel oil	4.625– 4.875	4.75 – 4.875	4.625– 4.875
28-32 fuel oil	4.625– 4.875	4.75 – 4.875	4.625– 4.875

OKLAHOMA

	Prices Feb. 10	Prices Feb. 3	Prices Jan. 27
38-40 straw distillate	3.25 – 3.625	3.375– 3.625	3.50 – 3.75
36-38 straw distillate	3.125– 3.375	3.375– 3.50	3.375– 3.50
32-36 straw gas oil	3.00	3.00 – 3.125	3.00 – 3.125
32-36 straw gas oil zero	3.25	3.25	3.25
32-36 dark gas oil	2.625– 2.875	2.75 – 2.875	2.75 – 2.875
32-36 dark gas oil zero	3.00 – 3.25	3.00 – 3.25	3.125– 3.25
28-30 zero fuel oil (per bbl.)	$1.125– 1.175	$1.125– 1.175	$1.15 – 1.20
28-30 fuel oil (per bbl.)	$1.05 – 1.15	$1.05 – 1.15	$1.05 – 1.15
26-28 fuel oil (per bbl.)	$0.95 – 1.05	$0.95 – 1.05	$0.95 – 1.05
24-26 fuel oil (per bbl.)	$0.95 – 1.00	$0.95 – 1.00	$0.95 – 1.00
22-26 fuel oil (per bbl.)	$0.90 – 1.00	$0.90 – 1.00	$0.90 – 1.00
18-22 fuel oil (per bbl.)	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
16-20 fuel oil (per bbl.)	$0.70 – 0.85	$0.70 – 0.85	$0.70 – 0.90
14-16 fuel oil (per bbl.)	$0.70 – 0.85	$0.70 – 0.85	$0.70 – 0.90

KANSAS (F. O. B. refinery Kansas destination)

38-40 straw distillate	3.625– 4.00	3.625– 4.00	3.75 – 4.00
36-38 straw distillate	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
32-36 straw gas oil	3.25 – 3.50	3.25 – 3.50	3.50
18-22 fuel oil (per bbl.)	$0.85 – 0.90	$0.85 – 0.90	$0.85 – 0.90
10-14 fuel oil (per bbl.)	$0.825– 0.875	$0.825– 0.875	$0.85 – 0.875

NORTH TEXAS

38-40 straw distillate	3.25 – 3.50	3.375– 3.625	3.375– 3.625
38-40 p.w. treated distillate	3.50 – 3.625	3.50 – 3.75	3.50 – 3.75
32-36 gas oil, cracked	2.75	2.75 – 3.00	2.75 – 3.00
32-36 St. reduced gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
24-26 fuel oil (per bbl.)	$0.70	$0.70	$0.70 – 0.75
20-24 fuel oil (per bbl.)	$0.60 – 0.70	$0.60 – 0.70	$0.60 – 0.70
18-22 fuel oil (per bbl.)	$0.60 – 0.65	$0.60 – 0.65	$0.60 – 0.65

**WEST TEXAS (F. o. b. West Texas refinery, for unrestricted shipment)

34-38 gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
30-32 gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
28-30 zero gas oil	2.50 – 2.875	2.50 – 2.875	2.50 – 2.875
18-22 fuel oil (per bbl.)	$0.60 – 0.80	$0.60 – 0.80	$0.60 – 0.80

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	3.50	3.50	3.50
32-36 gas oil, straw	3.25	3.25	3.25
14-16 fuel oil (per bbl.)	$0.80 – 0.85	$0.80 – 0.85	$0.80 – 0.85

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil, straw	3.50	3.50	3.50
32-36 dark gas oil	3.50	3.50	3.50
28-30 gas oil	3.25	3.25	3.25
20-24 fuel oil (per bbl.)	$0.95	$0.95	$0.95
9-12 fuel oil (per bbl.)	$0.75	$0.70 – 0.75	$0.70
Black oil	3.25	3.25	3.25

CALIFORNIA (F. o. b. San Joaquin Valley. At San Francisco 4c per bbl. more)

14-18 fuel oil (per bbl.)	$0.375–$0.50	$0.40 –$0.55	$0.45 –$0.60
14-18 Bunker oil (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
30-34 gas oil (per bbl.)	$0.70 –$0.90	$0.70 –$0.90	$0.80 –$0.90
27 Plus Diesel oil (per bbl.)	$0.70 –$0.90	$0.70 –$0.90	$0.80 –$0.90

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. refinery. In tank cars ⅛c to ¼c per pound less.) Two refiners quoting.

Snow White	8.25 – 8.75	8.25 – 8.75	8.75 – 9.00
Lily White	7.25 – 7.75	7.25 – 7.75	7.75 – 8.00
Cream White	6.25 – 6.75	6.25 – 6.75	6.75 – 7.00
Light Amber	3.50 – 3.75	3.50 – 3.75	3.75
Amber	3.25 – 3.50	3.25 – 3.50	3.50
Red	3.00 – 3.25	3.00 – 3.25	3.25

PETROLEUM COKE

**OKLAHOMA

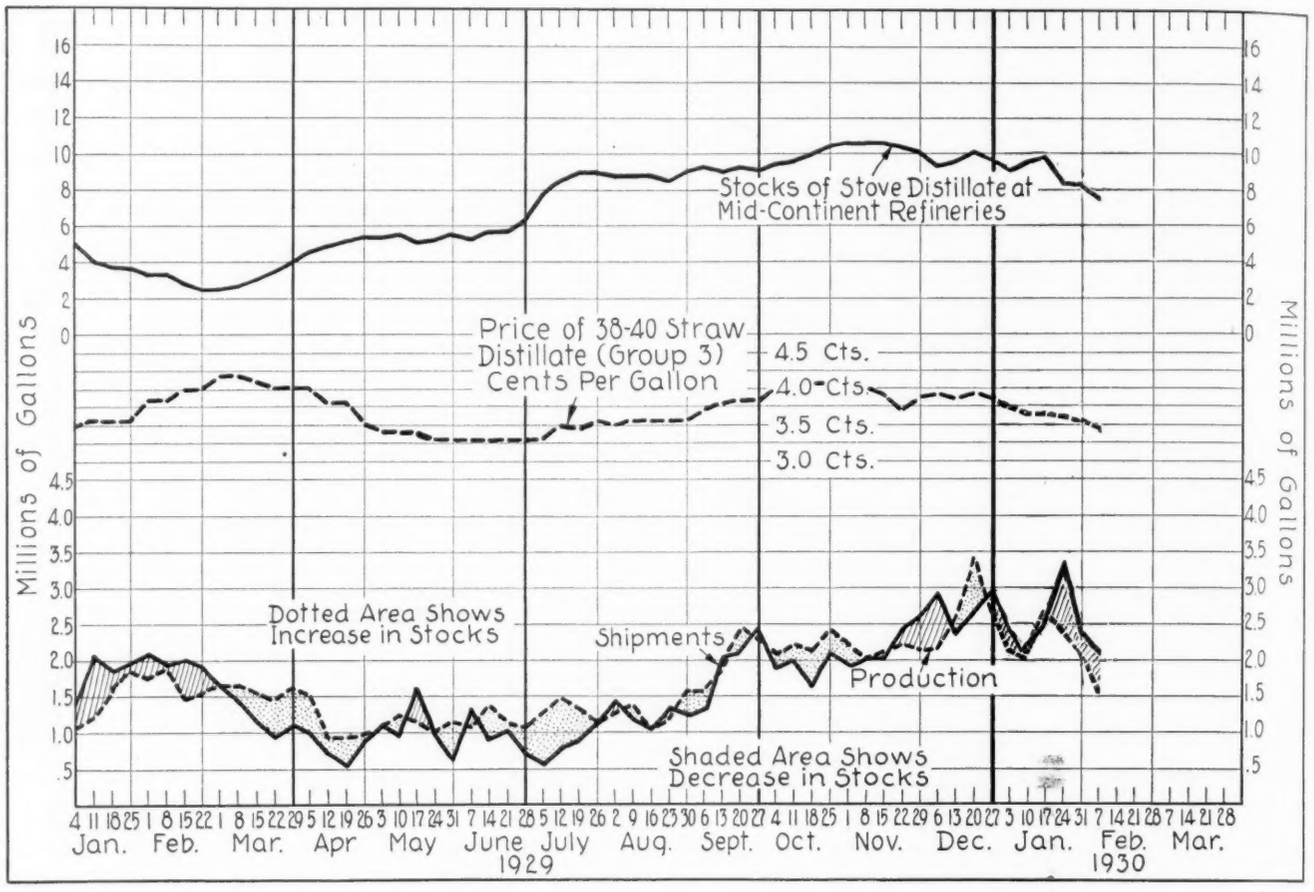
(Per ton in car lots)

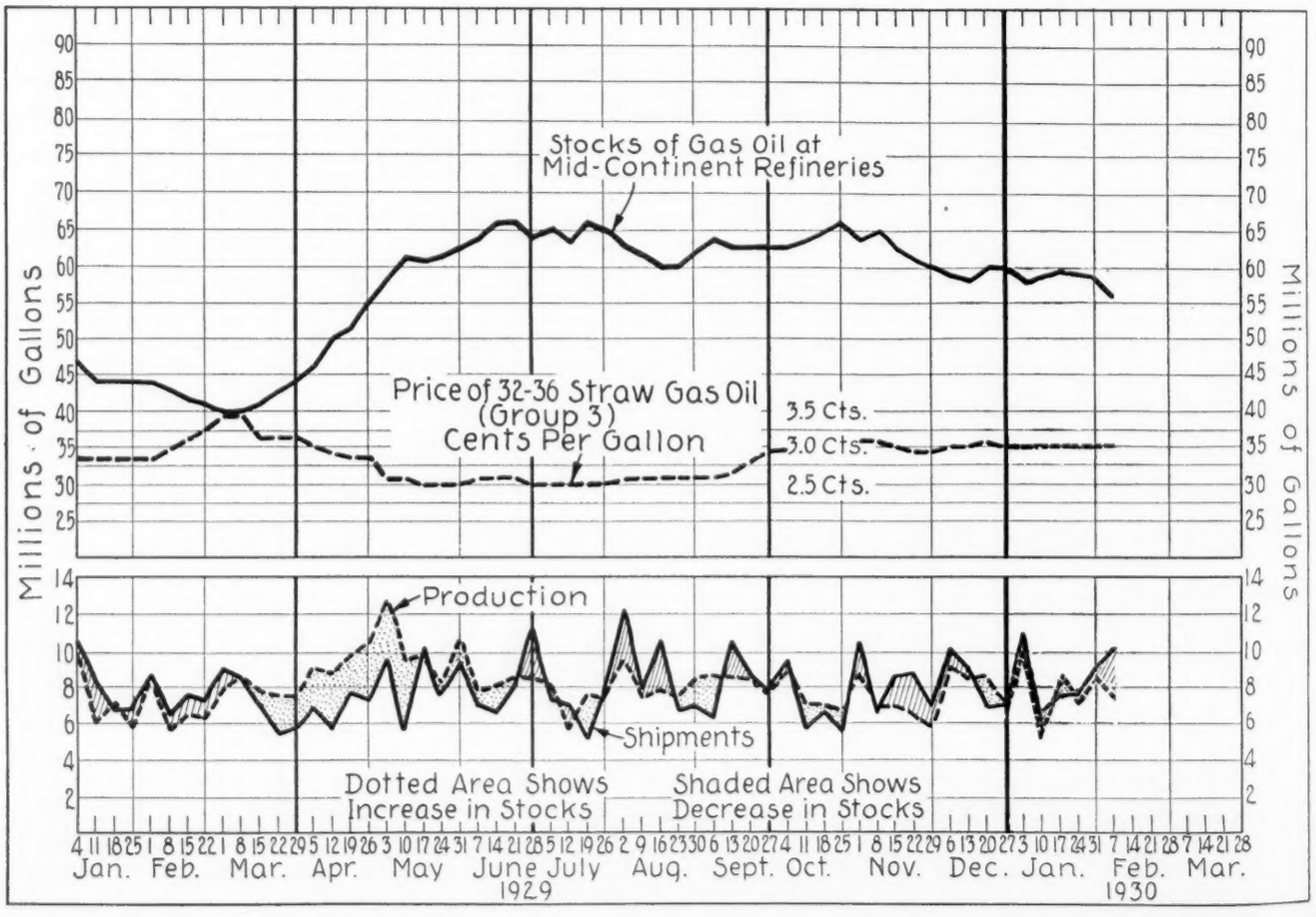
Lump	$4.50 – 5.00	$4.50 – 5.00	$4.50 – 5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

†Prices nominal ††Only one refiner quoting *Quotations only **Represents Both Sales and Quotations.

Barometer of Mid-Continent Refinery Market—Week Ending February 7

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Millions of Gallons
Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallon
4.5 Cts.
4.0 Cts.
3.5 Cts.
3.0 Cts.
Dotted Area Shows Increase in Stocks
Shipments
Production
Shaded Area Shows Decrease in Stocks
Jan. Feb. Mar. Apr May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930


Millions of Gallons
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Straw Gas Oil (Group 3) Cents Per Gallon
3.5 Cts.
3.0 Cts.
2.5 Cts.
Production
Shipments
Dotted Area Shows Increase in Stocks
Shaded Area Shows Decrease in Stocks
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

Humble Motor Oils Mean

Longer Life for Machinery

Proper lubrication, more than anything else, governs the service life of machinery. Whether you get one year of service, or ten years of service, from your machinery depends to a great extent on the quality, grade, and kind of lubricating oil you use.

Humble Motor Oils are the result of years of experience in lubricating internal combustion engines. Humble Oils retain the proper viscosity and hold their fluid film at the operating temperatures produced by high speeds. And, in addition, Humble Oils leave a semi-plastic, absorbed, protective film on the surface of the metal, after the fluid film is broken by starting and stopping. This protective film prevents excess abrasion, during periods of part lubrication, specially important with bearings, such as those of line shafts, countershafts, and machine tools, which are started and stopped frequently.

Insure longer service life for your machinery by lubricating with Humble Motor Oils.

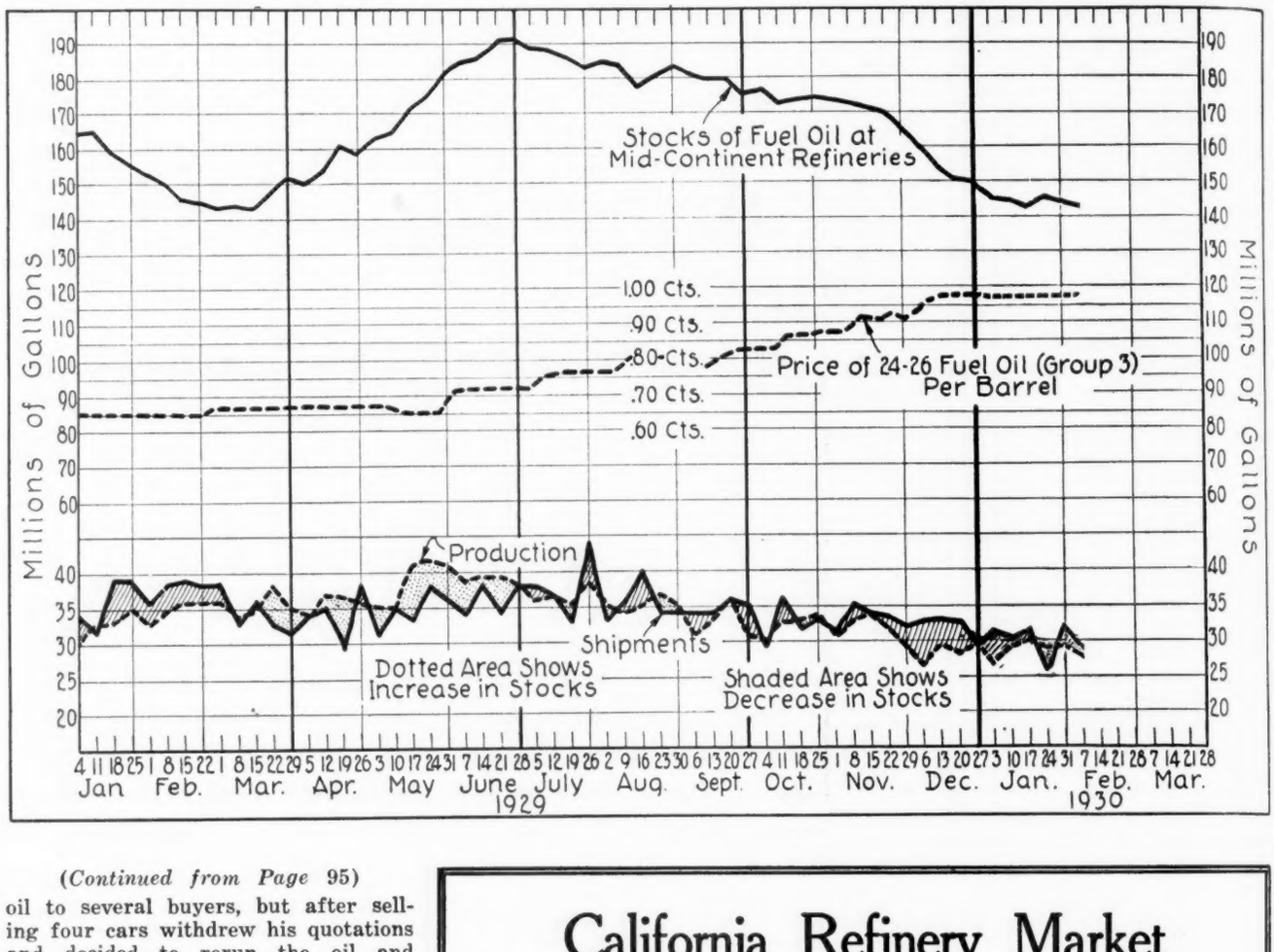
There is a Humble Oil which is specially prepared to meet every bearing need in your plant, your trucks, or in your automobile.

HUMBLE OIL & REFINING CO. HUMBLE OILS HOUSTON, TEXAS

HUMBLE OIL & REFINING COMPANY
Houston, Texas

Barometer of Mid-Continent Refinery Market—Week Ending February 7

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



(*Continued from Page* 95)

oil to several buyers, but after selling four cars withdrew his quotations and decided to rerun the oil and bring it up to specifications even at an increase in manufacturing cost, since he learned his prices were being used by some buyers in attempting to obtain reductions in prices from other manufacturers for specification oils.

Natural Gasolines

Several inquiries for natural gasolines which had been hanging fire most of the week were closed Friday and Saturday and spot prices moved upward.

Considerable buying for over the month was reported, but prospective purchasers reported spot shipment goods were closely held by manufacturers, which would indicate an anticipation of improved spot demand and higher prices later in the month.

One large contract was to expire Feb. 15 and some discussion was heard as to its possible effect on the spot market. The manufacturer who has the contract was understood to be working on a new one, but there also was the possibility some other company would be the successful bidder this year. The contract calls for around 800 cars a month, and the gasoline is shipped to the Gulf.

California Refinery Market

Surplus Crude Output Depresses Prices

LOS ANGELES, Feb. 8

CALIFORNIA refinery markets remained unsettled during the past week. The likelihood of a cut in crude oil prices, unless production is curtailed to around 600,000 barrels, loomed higher and retail market conditions failed to show any improvement.

Major companies were expending every effort to regain control of retail markets. Small independent operators in and around Los Angeles continued to unload gasoline at cheap prices with the result that the gasoline price structure was in a precarious position.

Refiners on the Pacific Coast were anxious to move several cargoes of U. S. Motor coastwise to relieve the local situation but inquiries from eastern buyers were lacking. Quotations for bulk shipments continued to range from 6.25 to 7 cents although these prices were largely nominal.

Tank car markets also were quiet and gasolines were quoted 0.25 to 0.50 cent lower. U. S. Motor for shipment to points outside of California sold as low as 6 cents with quotations for this class of shipments ranging up to 7.25 cents. Most sellers quoted 8.50 to 9 cents for U. S. Motor for shipment to points within the state although sales were reported as low as 8 cents.

Kerosene and fuel oil were depressed by the abnormally warm weather prevailing along the Pacific Coast. The representative of one major company reported that almost any quantity of fuel oil could be purchased for as low as $0.375 per barrel.

Two major companies in California were said to have sold between 600,000 and 700,000 barrels of crude oil at below the posted market, but the report lacked confirmation. Of the above quantity, two cargoes were reported sold at 5 cents below the field price.

Pennsylvania Market

Demand Quiet For All Products

CLEVELAND, Feb. 8.—Little change was noted in the western Pennsylvania market situation either from the standpoint of activity or prices in the week ended Feb. 8. The market was rife with rumors regarding gasoline and kerosene selling at extremely low prices, comparatively speaking, but these were discounted by a majority of the trade as covering distress material which was not representative of the general going market.

So called distress sales, however, were responsible for the few slight price recessions noted in several grades of gasoline and kerosene, according to reports. Prices of these commodities, however, were practically the only ones to show any variation over those quoted the previous week. Sales of 58-60 U. S. Motor gasoline were reported by several companies at 7.50 cents, 0.125 cent under the former low quotation.

The minimum quotation for 45 w.w. kerosene continued at 5.875 cents but quotations for the 46 and 47 gravity grades dropped 0.125 to 0.25 cent during the week. Sales of a number of fair sized quantities of the latter grade were reported at 6.125 cents.

Fuel oils held their recent price advance with all grades enjoying a fair demand at 4.75 to 5 cents a gallon. Demand for these oils was nothing spectacular but it stood out rather prominently against the demand for other commodities in that it was consistent.

Traders in the various districts were at variance in their opinions of the cylinder stock market. Some of them asserted that 24 cents was the lowest price at which good filterable 600 steam refined could be bought while other sellers said they could do 23.50 cents. There was very little spot buying of steam refined but on the other hand no surplus material was said to be hanging over the market.

Toward the end of the week there were reports of bright stock being offered at prices 0.50 to 1 cent under the quotations of the majority of large sellers but these reports could not be confirmed. Most sellers reported receiving numerous inquiries for bright stock but sales were spotty. No. 8 color oil was quoted largely at 42 cents but some was available 0.50 cent lower.

Wax was quiet with prices generally unchanged. Petrolatum demand eased off slightly and one refiner reduced his prices 0.75 cent per pound.

The United States exported 19,400 barrels of lubricating oils to Peru in 1928, out of the total imports of 20,040 barrels by that country.

Show Originality—Color Yours Differently

Color your anti-knock or high test gasoline an attractive shade by which the public will recognize and remember your good product.

DYKEM GASOLINE COLORS

Made to stay in gasoline, simple, safe, economical.

Several Shades of

RED, GREEN, BLUE,
ORANGE, PURPLE.

Write for price and sample of shade you prefer.

DYESTUFFS & CHEMICALS, INCORPORATED
11th & Monroe Sts. St. Louis, Mo.

"What About The OILGRAM?"

—asked the executive of a gasoline company on the west coast recently of a Tulsa oil man. His answer was . . .

"If you were to wire me for Mid-Continent gasoline prices today, I would phone a member of the OILGRAM staff, and my reply to you would be the *gist of what he told me*. The OILGRAM staff is in direct and close contact with the markets almost every hour of the business day. *They know their business.*"

You too, can have the benefit of this close contact with all phases of the market at all the principal refining and marketing centers.

The service costs only $65 for 6 months, or $100 a year, payable in advance. Approximately 40 cents a day—less than the cost of one wire or one phone call.

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CHICAGO—35 East Wacker Drive
NEW YORK—342 Madison Avenue
CLEVELAND—1213 West Third St.

Eastern Domestic Markets

Gasoline Prices Continue Downward

Staff Special
NEW YORK, Feb. 8

GASOLINE prices showed further recessions along the east coast in the week ended Feb. 8. Jobbing demand was quiet in practically all districts and shading of posted prices was said to be increasing. Kerosene movement was slow and prices were tending downward.

The effect of the new price schedule recently adopted by the Standard of New York was apparent in tank car prices in New England toward the end of the week. Standard's plan provides that tank car prices shall be 5.50 cents below net service station prices. In some districts, including Boston, Providence and Portland, this has amounted to a reduction which the majority of companies have met.

The majority of quotations for U. S. Motor gasoline for shipment into the Boston and Providence districts ranged from 10 to 10.25 cents, delivered, while Portland district quotations were 10.30 to 10.75 cents.

A Boston refiner reported closing some contracts over 1930 at 9.50 cents, delivered. Most companies were contracting on the basis of 4 cents under tank wagon, with a verbal 1 cent, rather than committing themselves to a flat price over the year.

Prices for U. S. Motor gasoline at New York harbor remained unchanged at 8.50 to 8.75 cents although there was some shading of the lower figure reported. One seller reported moving several barge loads of gasoline at 8.25 cents but few tank car sales were reported at less than 8.50 cents. Jobbers for the most part showed very little interest in buying for deferred shipment, their inquiries being confined to their immediate needs.

Prices at southern seaboard points leveled out to 8.75 cents flat. Several sellers who had been quoting 9 cents for U. S. Motor reduced their prices 0.25 cent. U. S. Motor still was available at 8.50 cents in the Jacksonville district.

Considerable shading of posted prices was reported in the Philadelphia and Baltimore districts. Both regular U. S. Motor and California U. S. Motor were available in the latter market at 8.50 cents whereas 8.75 cents continued to be the minimum quotation for both grades in the Philadelphia district.

California gasoline still was available in cargo lots at 8 cents, c.i.f. eastern ports. One large buyer said he had been quoted a price slightly less than 8 cents. No purchases of cargo lots were made known.

Kerosene was quiet in all markets and some of the trade were looking for lower prices. Most companies continued to quote 7.75 cents a gallon for water white kerosene although some shading of this figure was reported at New York harbor.

Correction

Price of 28-34 gas oil in New York harbor as of Feb. 3 in the eastern domestic market, page 122 of the Feb. 5 issue, should have been 4.75 to 5.25 cents, instead of 4.75 to 5.00 cents. Prices are corrected in this week's issue.

Oil Burner Men Elect

CHICAGO, Feb. 8.—The Chicago Burner Oil Distributors' Association celebrated its first birthday Feb. 4, with a dinner party at the Midland Club. All officers and directors were re-elected and in addition C. A. Rosenthal, Apex Motor Fuel Co. and Chas. Bennett, Cities Service Oil Co. were elected to the board of directors.

Among other accomplishments the past year, the association has formed a credit bureau. A slogan, "Burn Oil, Clean, Economical" was adopted.

Gulf Coast Markets

Interest Revived by French Inquiry

Staff Special
NEW YORK, Feb. 8

INTEREST in Gulf markets was revived toward the end of the past week with the report that a French buyer was seeking a large quantity of gasoline. Aside from this, there was little activity either in the export or domestic market at the Gulf.

Prices for all commodities both for foreign and domestic shipment were unchanged. Tanker rates, however, continued to climb higher with rates on both clean and dirty bottoms showing substantial increases.

The report that a French account was inquiring for gasoline did not become known generally until late Saturday and while the exact quantity of material the buyer was seeking could not be learned, it was said in some quarters the volume would approximate three cargoes.

There was no connection, the trade was inclined to think, between the aforementioned inquiry and the chartering of a clean boat by a foreign account to move in March. The latter, the trade believed, meant additional business for American refiners, although it could not be learned definitely if the charter specified shipment from American shores.

An idea of the tightness of the tanker market can be gained from the above charter which was made at 42 shillings per ton. The high quotation for clean boats plying trans-Atlantic from the Gulf early in the week was 39 shillings with some traders believing that 37 shillings could be done.

The trade continued to report the boat market strong straight through the week with only a few ships available for prompt movement. Confirmation could not be obtained of a report that three independently owned clean boats had been taken out of intercoastal service in the past two weeks and chartered for movement abroad.

Clean boats to the United Kingdom or the Continent were from 1 to 2/6 higher in the north Atlantic and Gulf trades. California rates were lower by 1 shilling. Quotations for dirty boats were from 1 to 3 shillings higher.

There was considerable interest shown in prices for Grade C bunker oil for export shipment from the Gulf. Suppliers' quotations generally were unchanged at $0.68 to $0.70 per barrel. Buyers, however, were of the opinion the lower figure could be shaded on firm offer.

Gulf Coast Lubes Higher

HOUSTON, Feb. 10.—An upturn in quoted prices for Gulf Coastal lubricants reflects reductions in crude runs and the disappearance from the market of quantities of finished materials that had been previously described as distress oil. Grades of nearly all viscosities are affected in both red and pale classifications. Manufacturers generally are adhering to the new schedules.

Wax Markets

White Crude Scale Quoted Lower

NEW YORK, Feb. 8.—White crude scale prices were lower both at New York and the Gulf in the week ended Feb. 8. Business was dull. Fully refined waxes were unchanged in price with most sellers reporting this section of the market in good shape.

Lack of interest on the part of both domestic and foreign buyers was said to have caused the decline in white crude scale prices. While some refiners were asking 3.125 cents a pound for scale, liberal quantities were offered at 3 cents at New York and New Orleans.

A few inquiries for white crude scale were in the New York market during the early part of the week. Most of them came from United Kingdom buyers. In most cases, however, the prices bid were lower than refiners were willing to accept and but little business was closed as a result.

Gulf suppliers reported receiving a number of bids of 2.875 cents a pound for white crude scale but no business was reported placed at this figure. Stocks of wax at the Gulf were said to be in fairly good shape.

Two small lots of white crude scale sold at 2.875 cents and 2.90 cents per pound, respectively, at New York but neither was believed representative of the general market in view of peculiar circumstances surrounding the transactions.

The large orders for fully refined wax placed by the Spanish Monopoly last week combined with the heavy buying from Mexico a few weeks back was said to have placed the fully refined market in better shape than has been the case for some time.

The Spanish Monopoly, it was disclosed the past week, purchased 2000 tons of 123-125 A.m.p. and 125-127 A.m.p. wax for shipment during February and March. A number of the trade were of the opinion the Monopoly would be in the market for a similar quantity again in April.

The minimum quotation for 125-127 A.m.p. moved up 0.125 cent to 4.125 cents following the Monopoly's buying. Higher melting point waxes were generally unchanged.

Some of the optimism expressed over the fully refined market last week was dissipated this week when it was learned that United Kingdom candle makers had reduced their prices 0.25 cent per pound.

KANSAS CITY—B. G. Shepard, president, Inter-State Oil Co., here, was in Trinity Lutheran hospital in this city undergoing an operation for appendicitis the week of Feb. 3.

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Complete Seaboard Market

(Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

U. S. MOTOR GASOLINE	Feb. 10	Feb. 3	Jan. 27
New York harbor	8.50 – 8.75	8.50 – 8.75	8.50 – 8.75
Portland district	**10.30–10.75	*10.75	*10.75
Boston district	**10.00–10.25	*10.25	*10.25
Providence district	**10.00–10.25	*10.25	*10.25
Philadelphia district	8.75	8.75	8.75
Baltimore district	8.50 – 8.75	8.75	8.75
Norfolk district	8.75	8.75 – 9.00	8.75 – 9.00
Charleston district	8.75	8.75 – 9.00	8.75 – 9.00
Savannah district	8.75	8.75 – 9.00	8.75 – 9.00
Jacksonville district	8.50 – 8.75	8.50 – 9.00	8.75 – 9.00
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	8.75	8.75 – 9.00	8.75 – 9.00
Philadelphia district	8.75	8.75	8.75
Baltimore district	8.50 – 8.75	8.75	8.75
WATER WHITE KEROSENE			
New York harbor	7.75	7.75	7.75
Philadelphia district	7.75	7.75	7.75
Baltimore district	7.75	7.75	7.75
GAS OIL: 28-34 Gravity			
New York harbor	4.75 – 5.25	4.75 – 5.25	4.75 – 5.00
Boston district	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Boston district	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
GRADE C BUNKER OIL†			
New York Harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00 –$2.10	$2.00 –$2.10	$2.00 –$2.10

Note: Above gasoline prices do not include inspection tax levied in some states. *Minimum delivered. †Lighterage 5c per bbl. additional. **Delivered prices.

New York Export Market

(Lubricating oils are per gal. in bbls. F.a.s. New York)

	Feb. 10	Feb. 3	Jan. 27
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	47.00 –50.00	48.00 –50.00	47.50 –48.00
600 D filtered	39.75 –42.00	39.75 –42.00	40.00 –42.00
600 Warren E filtered	34.50 –36.00	35.00 –36.00	34.50 –36.00
600 s.r. unfiltered	30.00 –31.00	30.50 –31.00	31.00
650 s.r. unfiltered	36.00 –37.00	36.00 –37.00	35.50 –37.00
600 flash, s.r.	38.50 –40.00	38.00	38.00
630 flash, s.r.	42.50 –44.00	42.50 –44.00	42.50 –44.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00 –21.00	20.00 –21.00	20.00 –21.00
250 vis. No. 6 color	17.50 –18.50	17.50 –18.50	18.00 –20.00
200 vis. No. 6 color	16.50 –17.50	16.50 –17.50	16.00 –17.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.00 –24.00	23.00 –24.00	22.00 –24.00
180 vis. No. 3¼ color	19.00	19.00	18.00 –20.00
100 vis. No. 2¼ color	15.50 –16.00	15.50 –16.00	16.00
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	30.00	30.00	30.00 –32.00
500 vis. No. 6½ color	26.50 –27.50	26.50 –27.50	28.00 –29.00
400 vis. No. 7¼ color	23.00 –25.00	23.00 –25.00	26.00 –27.00
300 vis. No. 6 color	20.00 –22.00	20.00 –22.00	23.00 –24.00
200 vis. No. 6 color	18.00 –20.00	18.00 –20.00	21.00 –22.00

Wax Markets

(Prices in cents per pound, A.S.T.M. tests; A.M.P.)

NEW YORK (F.a.s. carload lots)	Feb. 10	Feb. 3	Jan. 27
124-126 Yellow crude scale	2.875– 3.00	2.875– 3.00	2.875– 3.00
122-124 White crude scale	3.00	3.00 – 3.125	3.00 – 3.125
124-126 White crude scale	3.00	3.00 – 3.125	3.00 – 3.125
123-125 Fully refined	4.00 – 4.125	4.00 – 4.125	4.00 – 4.125
125-127 Fully refined	4.125– 4.25	4.00 – 4.25	4.00 – 4.25
128-130 Fully refined	4.375– 4.50	4.375– 4.50	4.25 – 4.50
130-132 Fully refined	4.50 – 4.75	4.50 – 4.75	4.75 – 5.00
133-135 Fully refined	5.625– 5.75	5.625– 5.75	5.50 – 5.75
135-137 Fully refined	5.75 – 6.00	5.75 – 6.00	6.00 – 6.25
NEW ORLEANS (F.a.s. carload lots)			
124-126 Yellow crude scale	2.875	2.875	2.875
122-124 White crude scale	3.00	3.00 – 3.125	3.00 – 3.125
124-126 White crude scale	3.00	3.00 – 3.125	3.00 – 3.125
123-125 Fully refined	3.875– 4.00	3.875– 4.00	3.875– 4.00
125-127 Fully refined	4.00	4.00	4.00
128-130 Fully refined	4.125	4.125	4.125
130-132 Fully refined	4.375	4.375	4.375
133-135 Fully refined	5.50	5.50	5.50

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted and for export shipment only).

GASOLINE	Feb. 10	Feb. 3	Jan. 27
U. S. Motor	8.50	8.50	8.50
60-62, 400 e.p.	9.50	9.50	9.50
61-63, 390 e.p.	9.75	9.75	9.75
64-66, 375 e.p.	10.00	10.00	10.00
U. S. Motor, cases (cargoes)	$1.85	$1.85	$1.85
64-66, cases (cargoes)	$2.05	$2.05	$2.05
KEROSENE			
44 water white	8.00	8.00	8.00
41-43 prime white	7.00	7.00	7.00
Water white, cases (cargoes)	$1.85	$1.85	$1.85
Prime white, cases (cargoes)	$1.75	$1.75	$1.75
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.875– 4.00	3.875– 4.00	4.00
*30 plus translucent gas oil	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
Grade C bunker oil	$0.95	$0.95	$0.95
Grade C bunker oil, cargoes	$0.68 –$0.70	$0.68 –$0.70	$0.70 –$0.75

*Less than ½ of 1% sulphur.

MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
Grade C bunker oil for bunkering purposes, taxes paid	$1.00	$1.00	$1.00

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0. Tanker, f. o. b. Houston)			
100 vis. No. 2 unfiltered pale	6.00	6.00 – 6.50	6.00 – 6.50
200 vis. No. 3 unfiltered pale	8.50	8.25 – 9.00	8.25 – 9.00
300 vis. No. 3 unfiltered pale	9.50	9.75 –10.00	9.75 –10.00
500 vis. No. 3½ unfiltered pale	11.25	11.25 –11.50	11.25 –11.50
750 vis. No. 4 unfiltered pale	12.50 –12.75	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	16.00	16.25 –16.50	16.25 –16.50
200 vis. No. 5-6 red oil	7.25	7.00 – 8.00	7.00 – 8.00
300 vis. No. 5-6 red oil	8.50	8.00 – 8.50	8.00 – 8.50
500 vis. No. 5-6 red oil	9.50	9.25 –10.00	9.25 –10.00
750 vis. No. 5-6 red oil	11.50	11.00 –12.00	11.00 –12.00
1200 vis. No. 5-6 red oil	15.00	15.00 –16.00	15.00 –16.00

Gulf Domestic Market

(Prices are f.o.b. Gulf oil terminals in Texas and Louisiana in shipments of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only).

	Feb. 10	Feb. 3	Jan. 27
U. S. Motor gasoline	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
41-43 w.w. kerosene	5.875– 6.25	5.875– 6.25	6.125– 6.375
*26-32 translucent gas oil	3.875– 4.125	3.875– 4.125	3.875– 4.125

*Less than ½ of 1% sulphur.

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Feb. 10	Feb. 3	Jan. 27
Gasoline, U. S. Motor, 53-55 Gravity	6.25 – 7.00	6.25 – 7.00	6.25 – 7.00
Gasoline, U. S. Motor-blends and special cuts	7.25 –10.00	7.25 –10.00	7.25 –10.00
Gas Oil, 30-34, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.85 –$1.00
Diesel Oil, 27 plus, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Bunker oil, 14-18, per barrel	$0.65 –$0.85	$0.65 –$0.85	$0.65 –$0.85
Fuel oil, 14-18 per barrel	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.00 – 6.00	5.00 – 6.00	5.75 – 6.25
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125, 150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	Feb. 10 Crude &/or Fuel	Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	35-40	50-55
Gulf to U. K. or Continental ports*	24-26	42-45
North Atlantic to U. K. or Continental ports*	20/6–23/6	39/6–42/6
Calif. to North Atlantic ports (not E. of N. Y.)	$1.00-$1.05	$1.00-$1.05
Gulf to North Atlantic ports (not E. of N. Y.)**	40-42	36-40

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.

**Venezuela loading same rate. For Tampico 3c per bbl. additional.

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Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t. w. and s. s. markets for a whole year, arranged for quick reference)

These Prices in Effect Feb. 10, 1930, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Newark, N. J.	13.5	2	15.5	17.5	12.5
Annapolis	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Cumberland, Md.	15	4	19	21	14
Washington, D. C.	13.7	2	15.7	17.7	12.7
Danville, Va.	14.8	5	19.8	21.8	13.8
Norfolk, Va.	13.3	5	18.3	20.3	11
Richmond, Va.	13.7	5	18.7	20.7	12.7
Roanoke, Va.	15	5	20	22	14
Petersburg, Va.	14.3	5	19.3	21.3	13.3
Charleston, W. Va.	14.5	4	18.5	20.5	12.5
Keyser, W. Va.	15.1	4	19.1	21.1	14.1
Parkersburg, W. Va.	13.2	4	17.2	19.2	11.2
Wheeling, W. Va.	14.4	4	18.4	20.4	12.4
Charlotte, N. C.	15.3	5	20.3	22.3	14.3
Hickory, N. C.	15.8	5	20.8	22.8	14.8
Mt. Airy, N. C.	15.5	5	20.5	22.5	14.5
Salisbury, N. C.	15.7	5	20.7	22.7	14.7
Charleston, S. C.	13.3	6	19.3	21.3	12.3
Columbia, S. C.	15.2	6	21.2	23.3	14.2

Note: 2c per gallon discount off t.w. price of gasoline to dealers and commercial consumers thru S. O. New Jersey territory.

CONTINENTAL OIL

Denver, Colo.	14	4	18	21	15.5
Pueblo, Colo.	14	4	18	21	15.5
Grand Junc., Colo.	18	4	22	25	19
Casper, Wyo.	14	4	18	21	14
Cheyenne, Wyo.	15.5	4	19.5	22.5	15.5
Butte, Mont.	18.5	5	23.5	26.5	20
Helena, Mont.	18.5	5	23.5	26.5	20
Salt Lake City, Utah	16.5	3½	20	23	17
Boise, Ida.	18.5	4	22.5	25.5	19
Twin Falls, Ida.	18.5	4	22.5	25.5	19
Albuquerque, N. M.	15	5	20	22	17

S. O. CALIFORNIA

				*Plant	
Phoenix, Ariz.	14	4	18	22	20
Los Angeles, Cal.	16.5	3	19.5	22.5	15.5
Fresno, Cal.	17	3	20	23	17
San Francisco, Cal.	17	3	20	23	15.5
Reno, Nev.	21	4	25	28	19
Portland, Ore.	17.5	4	21.5	24.5	16.5
Seattle, Wash.	17.5	3	20.5	23.5	16.5
Spokane, Wash.	21.5	3	24.5	27.5	20.5
Tacoma, Wash.	17.5	3	20.5	23.5	16.5

Note: 4c per gal. discount to dealers off t.w. price of gasoline to customers taking tank truck delivery, thru S. O. California territory except 1c discount at Phoenix to dealers only.

*This represents retail sale price of gasoline for delivery into fuel tanks of customers' automotive equipment at S. O. California refineries, terminals and district depots as this company operates no retail service stations.

S. O. LOUISIANA

Little Rock, Ark.	13	5	18	20	13
Alexandria, La.	‡13	4	‡17	19	†14
Baton Rouge, La.	12	4	16	18	†14
Lake Charles, La.	††14	4	††18	††20	†14
New Orleans, La.	*11	4	*15	16	†12
Shreveport, La.	12	4	16	18	†14
Lafayette, La.	**14	4	**18	**20	†14
Bristol, Tenn.	14	5	19	20	14
Chattanooga, Tenn.	15	5	20	22	13
Knoxville, Tenn.	15	5	20	22	16
Nashville, Tenn.	14	5	19	21	16
Memphis, Tenn.	13	5	18	20	12.5

Note: 2c per gallon discount off t.w. price of gasoline to dealers thru S. O. Louisiana territory.

*New Orleans gasoline prices include 1c parish tax in addition to 4c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

**Lafayette gasoline prices include 1c parish tax in addition to 4c state tax.

††Lake Charles gasoline prices include 1c parish tax.

‡Alexandria gasoline prices include 1c parish tax

S. O. KENTUCKY

Ashland, Ky.	15	5	20	21	15
Catlettsburg, Ky.	15	5	20	21	15
Lexington, Ky.	13	5	18	20	14.5
Louisville, Ky.	14	5	19	21	13
Covington, Ky.	14	5	19	20	14.5
Clarksdale, Miss.	13	5	18	20	12.5
Gulfport, Miss.††	15.5	5	20.5	22.5	13
Jackson, Miss.	14	5	19	21	13
Natchez, Miss.	13.5	5	18.5	20.5	13
Vicksburg, Miss.	13.5	5	18.5	20.5	13
Birmingham, Ala.	13	4	17	19	13
Mobile, Ala‡.	14	4	18	20	13.5
Montgomery, Ala.*	15	4	19	21	15
Atlanta, Ga.	14	6	20	22	†15.5
Augusta, Ga.	15	6	21	23	†15.5
Macon, Ga.	15	6	21	23	†15.5
Savannah, Ga.	14	6	20	22	†14
Jacksonville, Fla.	14	6	20	20	14
Miami, Fla.	15	6	21	23	14
Tampa, Fla.	14	6	20	22	13
Pensacola, Fla.**	12	6	18	20	13.5

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices include 1c city tax

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

Latest Changes in Tank Wagon Prices

Gasoline

Atlantic Refining—T.w. and s.s. prices of gasoline were revised to conform with prices posted by S. O. New York, **Feb. 1.** This revision affects Massachusetts, Rhode Island and Connecticut.

S. O. Kentucky—T.w. and s.s. up 1c, Augusta, to 21c and 23c respectively including 6c tax, **Feb. 3.**

S.s. only cut 2c, Jacksonville, to 20c, same as tank wagon, **Feb. 6.**

S. O. Louisiana—S.s. only up 1c, New Orleans, to 16c, **Feb. 5.**

S. O. Indiana—S.s. only cut 4c, Wichita, to 14.8c, t.w. remaining unchanged at 17.8c, including 3c tax, **Feb. 5.**

T.w. cut 1c, s.s. 2c, Detroit, both to 18.8c, including 3c tax, **Feb. 8.** On same date Q.D.A. was changed, allowing dealers and consumers who sign contracts for all their gasoline requirements for a year, 4c discount off service station price. Non-contracted accounts get 3c discount off s.s. price.

Continental Oil—T.w. and s.s. cut 2c thru Montana; cut 1c generally thru Wyoming, Utah and Idaho; also cut 1c thru Colorado except Denver and Pueblo which remained changed, and Grand Junction which was cut only ½c **Feb. 8.** S.s. price at Twin Falls was adjusted to a normal spread of 3c above the t.w. price.

Magnolia Petroleum—T.w. and s.s. gasoline up 1c, Muskogee, to 14c and 16c, including tax, **Feb. 4.**

Kerosene

Atlantic Refining—T.w. prices of kerosene were revised to conform with prices posted by S. O. New York, **Feb. 1.** This revision affects Massachusetts, Rhode Island and Connecticut.

S. O. Louisiana—Kerosene cut 1c, New Orleans, to 12c t.w., **Feb. 5.**

S. O. NEBRASKA

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Omaha, Neb.	16.25	4	20.25	22.75	13.25
McCook	17.75	4	21.75	23.75	14.75
Norfolk	16.75	4	20.75	22.75	13.75
North Platte	17.75	4	21.75	23.75	14.50
Scottsbluff	17.75	4	21.75	23.75	14.25

S. O. INDIANA

Chicago, Ill.	14	3	17	18	13
Decatur, Ill.	16.2	3	19.2	20.2	13.1
E. St. Louis, Ill.	15.4	3	18.4	19.4	12.2
Joliet, Ill.	16.4	3	19.4	20.4	13.3
Peoria, Ill.	16.2	3	19.2	20.2	13.1
Quincy, Ill.	16.2	3	19.2	20.2	12.9
Indianapolis, Ind.	16.2	4	20.2	21.2	14.2
Evansville, Ind.	16	4	20	21	14
South Bend, Ind.	16.4	4	20.4	21.4	14.4
Detroit, Mich.	15.8	3	18.8	18.8	14
Grand Rapids, Mich.	16.7	3	19.7	20.7	14.6
Saginaw, Mich.	16.9	3	19.9	20.9	14.8
Green Bay, Wisc.	16.6	2	18.6	19.6	13.4
Madison, Wisc.	16.3	2	18.3	19.3	13.1
Milwaukee, Wisc.	16.1	2	18.1	19.1	12.9
La Cross, Wisc.	17.2	2	19.2	20.2	14
Minneapolis, Minn.	17.2	3	20.2	21.2	13.9
Duluth, Minn.	17.5	3	20.5	21.5	13.9
Mankato, Minn.	17.1	3	20.1	21.1	13.7
Des Moines, Ia.	16.5	3	19.5	20.5	13.3
Davenport, Ia.	16.5	3	19.5	20.5	13.3
Sioux City, Ia.	16.1	3	19.1	20.1	12.9
Mason City, Ia.	16.5	3	19.5	20.5	13.3
St. Louis, Mo.	*15.9	2	17.9	18.9	12.3
Kansas City, Mo.	†16.9	2	18.9	19.9	11.6
St. Joseph, Mo.	†16.5	2	18.5	19.5	12.2
Fargo, N. D.	18.9	3	21.9	22.9	15.9
Grand Forks, N. D.	19.2	3	22.2	23.2	16.2
Minot, N. D.	18.9	3	21.9	22.9	15.9
Pierre, S. D.	17	4	21	22	14.4
Huron, S. D.	17.3	4	21.3	22.3	14.7
Wichita, Kans.	14.8	3	17.8	14.8	11.8
Bartlesville, Okla.	14.5	4	18.5	19.5	11.5

S. O. Indiana's quantity contract price schedule thru territory except in Chicago and Detroit on tank truck deliveries of gasoline, figured from the service station price is 2c for 500 gals. or more a month; 2½c for 2000 gals. or more a month and 3c for 6000 gals. or more a month.

In Chicago and vicinity, these discounts apply. Over 500 gals. per month, 2c per gal. off service station price; over 1,000 gals. per month, 4c per gal. off service station price.

In Detroit, effective Feb. 8, 1930, dealers and consumers signing contract for all gasoline for year, get 4c per gal. off s.s. price. Non-contracted accounts get 3c off s.s. price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Ohio state-wide	14	4	18	19	12
Columbiana, Darke and Hancock Counties	13	4	17	17	12

Note: Discount to dealers and commercial accounts generally thru Ohio is 2c per gal. off t.w. price with some exceptions. In counties where prices are below normal, discount is 3c per gal. off t.w. price.

MAGNOLIA PETROLEUM

Muskogee, Okla.	10	4	14	16	10
Oklahoma City	11	4	15	18	10
Tulsa, Okla.	11	4	15	19	10
Fort Smith, Ark.†	11	†4	15	17	12
Little Rock, Ark.	13	5	18	20	13
Texarkana, Ark.*	13	*4	17	19	12
Dallas, Tex.	13	4	17	21	12
Fort Worth, Tex.	13	4	17	20	12
Houston, Tex.	11	4	15	19	11
San Antonio, Tex.	11	4	15	19	11
El Paso, Tex.	12	4	16	20	14

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Florida, 1/8c on both; Georgia, 1/10c on both; Indiana, 4/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 3/10c to 1/2c on both; Nebraska, 3/50c to 1/2c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only, per gallon; Iowa, 7/100c; Michigan 1/5c to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above state or other states there are local inspection fees.

Greasing

28 articles in National Petroleum News, published since the first of 1929, have been devoted exclusively to telling how to grease cars properly and profitably. How to build greasing stations, how successful companies sell their grease, and other grease problems, are also discussed in these stories.

Here they are for your file reference:

1930

How showmanship helps sell gear grease — Jan. 22, p. 96

1929

Gets 22 greasing jobs daily — Nov. 13, p. 24
Grease making, past and present — Oct. 16, p. 67
Tests of lubricating greases — Oct. 16, p. 69
Grease neglected, chemists say — Sept. 18, p. 33
Eight pointers on how to build up grease sales — Aug. 28, p. 100
Encloses grease pits for winter profits — Aug. 7, p. 101
How Omaha Ford dealers go after greasing — July 24, p. 82
Grease equipment specifications adopted by Conference of Weights and Measures — June 26, p. 96
Grease is future auto engine lubricant — June 26, p. 138
Grease pump code amended to permit sales by weight — June 12, p. 41
Grease gun specifications to come up June 6 — May 29, p. 32-D
Non-metering grease pumps may be ruled out — May 22, p. 38
How jobbers can help greasing sales — May 22, p. 120
Grease stations may have to get new equipment — May 15, p. 32
Puts out grease chart for every car — May 15, p. 143
Takes lubrication to farm trade — Apr. 24, p. 104
Handbook on chassis greasing — Apr. 17, p. 110
Open air greasing stations in California — Apr. 10, p. 92
Thoro lubrication for car—what to grease — March 20, p. 178
Gives men grease sale profits — March 20, p. 184
I. O. M. A. lubrication chart — March 6, p. 94
Boosts grease sales with parades, radio — Feb. 27, p. 98
Speed, thoroness in lubritorium — Feb. 13, p. 96
Car greasing profits lost at most stations — Jan. 30, p. 75
Something about auto greases — Jan. 30, p. 76
Grease pit housed in style — Jan. 23, p. 72
Selling industrial greases — Jan. 16, p. 87

Back copies of any of the above issues are 25c a copy. On issues that are exhausted, photostats will be furnished at 40c per page. Libraries in the larger cities generally keep back files of National Petroleum News complete.

National Petroleum News
Main Office: 1213 West Third St.
Cleveland, Ohio

Tank Wagon, Service Station Markets for Gasoline and Kerosene

Prices in Effect Feb. 10, 1930

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

	Gasoline T.W.	Tax	Gasoline Total T.W.	S.S.	Oil T.W.
Greater New York City:					
Boroughs of Manhattan, Bronx, Queens & Kings	14.3	2	16.3	17.3	12.3
Borough of Richmond	14.7	2	16.7	17.7	12.7
Albany, N. Y.	15.6	2	17.6	18.6	13.6
Buffalo, N. Y.	14.8	2	16.8	17.8	12.8
Rochester, N. Y.	15	2	17	18	13
Syracuse, N. Y.	15.8	2	17.8	18.8	13.8
Boston, Mass.	14.5	2	16.5	17.5	12.5
Augusta, Me.	15.8	4	19.8	20.8	13.8
Manchester, N. H.	15.4	4	19.4	20.4	13.4
Burlington, Vt.	16.3	4	20.3	21.3	14.3

Note: S. O. New York allows 3c off t.w. price in New York City, and 2c off t.w. price thru rest of territory.

ATLANTIC REFINING

Pittsburgh, Pa.	15	*	15	21	13
Philadelphia, Pa.	15	*	15	21	13
Allentown, Pa.	15	*	15	21	13
Erie, Pa.	15	*	15	19	13
Scranton, Pa.	15	*	15	21	13
Altoona, Pa.	15	*	15	21	13
Dover, Del.	15	3	18	20	13
Wilmington, Del.	15	3	18	20	13
Boston, Mass.	14.5	2	16.5	17.5	12.5
Springfield, Mass.	15.5	2	17.5	18.5	13.5
Worcester, Mass.	15.3	2	17.3	18.3	13.3
Fall River, Mass.	15.1	2	17.1	18.1	13.1
Providence, R. I.	14.7	2	16.7	17.7	12.7
Hartford, Conn.	15.5	2	17.5	18.5	13.5
New Haven, Conn.	15.6	2	17.6	18.6	13.6
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Camden, N. J.	13.6	2	15.6	17.6	12.6
Trenton, N. J.	14	2	16	18	13
Annapolis, Md.	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Hagerstown, Md.	14.7	4	18.7	20.7	13.7
Richmond, Va.	13.7	5	18.7	20.7	12.7
Wilmington, N. C.	13.4	5	18.4	20.4	12.4
Brunswick, Ga.	16	6	22	24	**16.5
Jacksonville, Fla.	14	6	20	20	14

Note: 2c per gal. discount off t.w. price of gasoline on sales to dealers; discount to commercial accounts under contract for one year in accordance with Code of Ethics.

*4-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosene prices include 1c state tax.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.7	17
Detroit	17.4	18.9	20.7
Kansas City	†15.9	†17.4	†19.2
Milwaukee	16.4	*19.9	*21.7
Minneapolis	**20.7	**22.2	**24
St. Louis	15.6	17.1	18.9
New York		16	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)	
New York harbor	11.00
Philadelphia district	11.00
Providence	11.50
Tank Wagon or Steel Barrels	
New York City	18
Syracuse	18
Rochester	18
Buffalo	18
Providence	19
Boston	19
Bridgeport	18
Newark	18
Philadelphia	16
Baltimore	18

Note: 2c off above t.w. prices to large buyers in some instances.

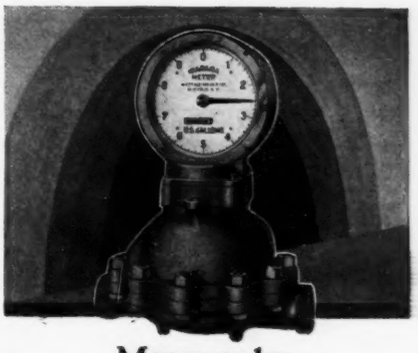
CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline T.W.	Tax	Gasoline Total T.W.	S.S.	Oil T.W.
Toronto	19.5	5	24.5	28	20.5
Ottawa	19.5	5	24.5	28	20.5
Cochrane	24.5	5	29.5	..	25.5
Ft. William	22.5	5	27.5	31	22.5
Border Cities, including Windsor	18.5	5	23.5	27	19.5

(*Continued on Page 116*)



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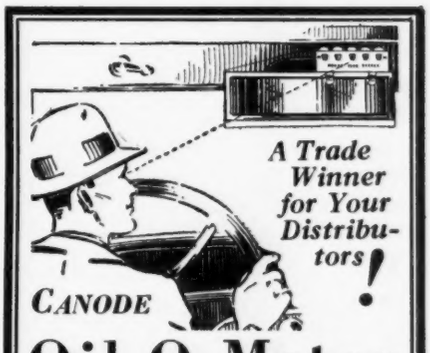

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ANDERSON-PRICHARD OIL CORPORATION
COL-TEX REFINING COMPANY

PRODUCERS AP REFINERS

OKLAHOMA CITY, OKLA.

Crude Oil Prices (in Effect Feb. 10, 1930)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

†Bradford—Alleghany district.....$3.25
Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District).....††3.00
Bradford District Oil in National Transit Lines (Bradford District).....††3.00
Penna. Grade Oil in National Transit Lines (Other Pennsylvania).....*3.05
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)..... 3.00
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)..... 2.90
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)..... 2.70
Wayne district crude in Cumberland lines (West Virginia)..... 1.42
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective Dec. 6, 1929)..... 1.80
Corning, O., heavy grade (Effective Dec. 6, 1929) 1.70
Somerset Oil in Cumberland Pipe Lines (Kentucky) (Effective Nov. 12, 1929).... 1.55
Somerset Oil in Eureka Pipe Lines (Effective Nov. 12, 1929)..... 1.29
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 29, 1929)....$0.60

*Oil run prior to July 1, 1929 is $3.00 per bbl.
†Posted by Tide Water Pipe Co., Ltd.
††Oil run prior to July 1, 1929 is $2.95 per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines (Effective Jan. 20, 1930).....$1.55

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon):

32-32.9	$1.25	39-39.9	$1.60
33-33.9	1.30	40-40.9	1.65
34-34.9	1.35	41-41.9	1.70
35-35.9	1.40	42-42.9	1.75
36-36.9	1.45	43-43.9	1.80
37-37.9	1.50	44 and above	1.85
38-38.9	1.55		

(Posted by Pure Oil Co.)

Midland, Midland County.....$1.25

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective May 21, 1929

Wooster	$1.90	Princeton	$1.75
Lima	1.80	Illinois	1.75
Waterloo	1.20	Plymouth	1.28
Indiana	1.57	West Kentucky	1.68

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia.....$2.20
Oil Springs..... 2.27

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.
(In Oklahoma, Kansas, North and East Central Texas)

Effective May 20, 1929

Below 25	$0.85	35-35.9	$1.40
25-25.9	0.90	36-36.9	1.45
26-26.9	0.95	37-37.9	1.50
27-27.9	1.00	38-38.9	1.55
28-28.9	1.05	39-39.9	1.60
29-29.9	1.10	40-40.9	1.65
30-30.9	1.15	41-41.9	1.70
31-31.9	1.20	42-42.9	1.75
32-32.9	1.25	43-43.9	1.80
33-33.9	1.30	44 and above	1.85
34-34.9	1.35		

Sinclair Crude Oil Purchasing Co. posts same schedule as Prairie.

Humble Oil & Refining Co. Prices
(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)
(Effective Jan. 15, 1930)

Below 25	$0.60	35-35.9	$1.17
25-25.9	0.66	36-36.9	1.20
26-26.9	0.72	37-37.9	1.23
27-27.9	0.78	38-38.9	1.26
28-28.9	0.84	39-39.9	1.29
29-29.9	0.90	40-40.9	1.32
30-30.9	0.96	41-41.9	1.35
31-31.9	1.02	42-42.9	1.38
32-32.9	1.08	43-43.9	1.41
33-33.9	1.11	44 and above	1.44
34-34.9	1.14		

The Texas Co. met above prices on Jan. 15 in North, Central and North Central Texas.

Magnolia Petroleum Co.
(In Oklahoma, Kansas and North and East Central Texas)

Magnolia posted in above fields and in Panola Co., same schedule as Humble, which see above. Its postings in Texas were effective Jan. 16, and in Oklahoma and Kansas, Jan. 17, 1930.

Jan. 16, 1930, Glasscock, Crane, Upton, Winkler, Howard and Mitchell Counties same prices as Humble's postings in Winkler, Crane, etc., which see.

Iatan district.....$0.93
Corsicana heavy..... 0.75
Luling..... 0.75
Mirando..... 0.75
Darst Creek, 60° F. gravity..... 1.05

Carter Oil Co.
(Oklahoma and Kansas)

Jan. 16, 1930, same schedule as Humble, which see.

PANHANDLE, TEXAS
Humble Oil & Refining Co.
Effective Jan. 15, 1930

Hutchinson and Carson Counties:

Below 32	$0.72	38-38.9	$0.96
32-32.9	0.78	39-39.9	0.99
33-33.9	0.81	40-40.9	1.02
34-34.9	0.84	41-41.9	1.05
35-35.9	0.87	42-42.9	1.08
36-36.9	0.90	43-43.9	1.11
37-37.9	0.93	44 and above	1.14

Wheeler County:

Below 30	$0.70	37-37.9	$1.03
30-30.9	0.76	38-38.9	1.06
31-31.9	0.82	39-39.9	1.09
32-32.9	0.88	40-40.9	1.12
33-33.9	0.91	41-41.9	1.15
34-34.9	0.94	42-42.9	1.18
35-35.9	0.97	43-43.9	1.21
36-36.9	1.00	44 and above	1.24

Gray County:

Below 29	$0.69	37-37.9	$1.08
29-29.9	0.75	38-38.9	1.11
30-30.9	0.81	39-39.9	1.14
31-31.9	0.87	40-40.9	1.17
32-32.9	0.93	41-41.9	1.20
33-33.9	0.96	42-42.9	1.23
34-34.9	0.99	43-43.9	1.26
35-35.9	1.02	44 and above	1.29
36-36.9	1.05		

Above prices met by The Texas Co. on Jan. 15, and Magnolia on Jan. 16.

WEST TEXAS
Humble Oil & Refining Co.
Effective Jan. 15, 1930

Winkler, Crane, Upton, Crockett, and Pecos Counties, also Lea County, N. Mex.

Below 25	$0.55	27-27.9	$0.64
25-25.9	0.58	28-28.9	0.67
26-26.9	0.61	29-29.9	0.70
30-30.9	$0.73	34-34.9	$0.85
31-31.9	0.76	35-35.9	0.88
32-32.9	0.79	36 and above	0.91
33-33.9	0.82		

Howard and Glasscock counties:
Effective Jan. 15, 1930

Below 25	$0.55	31-31.9	$0.72
25-25.9	0.58	32-32.9	0.74
26-26.9	0.61	33-33.9	0.76
27-27.9	0.64	34-34.9	0.78
28-28.9	0.66	35-35.9	0.80
29-29.9	0.68	36 and above	0.82
30-30.9	0.70		

Jan. 15, 1930, The Texas Co. posted same prices in Crane, Upton, Winkler and Lea, and Magnolia, on Jan. 16, in Crane, Upton, Winkler, Glasscock, Howard and Mitchell as Humble in Winkler, Crane, etc.

SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)
Effective Jan. 15, 1930

Mirando.....$0.75
Salt Flat..... 1.05
Darst Creek..... 1.05

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado Crichton, De Soto, Sabine and **Cotton Valley.
Effective Jan. 16, 1930

Below 28	$0.78	36-36.9	$1.20
28-28.9	0.84	37-37.9	1.23
29-29.9	0.90	38-38.9	1.26
30-30.9	0.96	39-39.9	1.29
31-31.9	1.02	40-40.9	1.32
32-32.9	1.08	41-41.9	1.35
33-33.9	1.11	42-42.9	1.38
34-34.9	1.14	43-43.9	1.41
35-35.9	1.17	44 and above	1 44

**Cotton Valley, below 36, $0.80. Beginning with 36-36.9, same schedule as above.

Smackover, below 24.....$0.85
do 24 and above..... 1.00
Bellevue (Jan. 16, 1930)..... 1.05
*Urania, La. (Jan. 16, 1930)..... 0.85
†East El Dorado..... 0.75

*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.

Jan. 15, 1930, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.60; 25-25.9, $0.66; 26-26.9, $0.72; 27-27.9, $0.78.

Jan. 16, Magnolia, Louisiana Oil, and Gulf Companies met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.
Effective Jan. 16, 1930

Below 28	$0.70	30-30.9	$0.85
28-28.9	0.75	31-31.9	0.90
29-29.9	0.80	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.
Effective Jan. 15, 1930

Grades A	$1.05	29-29.9	$1.05
Grades B:		30-30.9	1.08
Below 25	0.90	31-31.9	1.11
25-25.9	0.93	32-32.9	1.14
26-26.9	0.96	33-33.9	1.17
27-27.9	0.99	34-34.9	1.20
28-28.9	1.02	35 and above	1.23

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only

Tractor Spirit Added to Houston Oil Co. Line

HOUSTON, Feb. 6.—Houston Oil Co. of Texas, has announced a new product to be known as Tractor Spirits which will be sold through company stations in Texas. The product is a distillate designed to give easy starting without gasoline priming. It is a slow burning fuel suitable only for tractor and other heavy duty, slow motors. A new tractor lubricant has been announced, to be placed on the market soon.

The company is expanding its marketing facilities in Texas. Bulk and retail stations are being built at Bishop. James Whitten will be in charge there. L. H. Sexton is manager of retail sales in Texas. The company now has stations at Houston, Victoria, Beeville, Bruni and Goliad. It entered this branch of the business a year ago. The company's refinery is at Camden, Ark.

Crude Price Changes

OIL CITY.—On Feb. 5 Joseph Seep Purchasing Agency reduced price of Bradford-Allegheny district crude 5 cents, making new price for oil run after July 1, 1929, $3.00 per barrel. Oil run prior to July 1 became $2.95 per barrel.

Coincident with the reduction of the Seep Agency, Tide Water Pipe Co., Ltd. reduced its price for Bradford-Allegheny crude 5 cents, to $3.25 per barrel.

RICHMOND, Va.—The car owners of Virginia spent, on the average, $123 for gasoline and oil in 1929. Total purchases of fuel and lubricants for 1929 amounted to $47,693,000. These figures were compiled by the Automobile Club of Virginia. The average expenditure does not include the amount spent in gasoline tax. The compilation showed also that 80 per cent of Virginia's gasoline consumption is through motor cars.

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LUBRICATING OIL SALESMAN'S PRIMER

The "Lubricating Oil Salesman's Primer" is a new book by Claude Ettele, associated with one of the big oil companies in this country. The author's purpose is "to properly present a first view of the subject of lubrication and encourage the young salesman to study advanced works without which he will be unable to develop maximum efficiency in the services of his employers and of his customers."

The book takes up the manufacture of various lubricating oils and greases; tests by which oil and grease specifications are written; general discussion of lubrication problems in cylinders, turbines, internal combustion engines; power transmission machinery such as shafting; wire ropes; belts, gears, bearings, etc., driven machines such as air compressors, pneumatic tools, ice machinery, machine tools, textile machinery, paper mills, mine and quarry machinery.

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Crude Oil Prices (in Effect Feb. 10, 1930)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective Jan. 15, 1930

Grades A	$1.05	*Grades B	$0.90
‡Grades B (light crude)			
35–35.9	$1.23	40–40.9	$1.36
36–36.9	1.26	41–41.9	1.38
37–37.9	1.29	42–42.9	1.40
38–38.9	1.32	43–43.9	1.42
39–39.9	1.34	44 and above	1.44

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

†The Texas Co.'s gravity and price schedule on all oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective May 20, 1929)

‡Salt Creek 29–29.9	$1.10
" " 30–30.9	1.15
" " 31–31.9	1.20
" " 32–32.9	1.25
" " 33–33.9	1.30
" " 34–34.9	1.35
" " 35–35.9	1.40
" " 36–36.9	1.45
" " 37 and above	1.50
Elk Basin	1.65
Grass Creek light	1.65
Big Muddy	$1.43
Lance Creek	1.68
Rock Creek	1.40
Mule Creek	1.20
Rex Lake	1.10
‡Osage	1.65
‡Cat Creek, Mont.	1.65
Sunburst, Mont.	1.75
‡Hogback, N. Mex.	1.70
Artesia, N. Mex.	1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

***Standard Oil Co. of California**

Gravity	Alamitos Heights Huntington Beach Signal Hill Seal Beach	Inglewood Torrance	Olinda-Brea Canon †Richfield	Athens-Rosecrans Dominguez	Elwood Terrace	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Kettleman Hills	*Santa Maria (Orcutt)	*Ventura
14–14.9	$ .70	$ .70	$ .70	....	....	$ .70	$ .70	....	$ .50	$ .50	$ .50	$ .50	$ .50	$ .70	....	$ .65	$ .70
15–15.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
16–16.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
17–17.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
18–18.9	.75	.75	.75	....	....	.75	.75	....	.50	.56	.56	.56	.56	.70	....	.70	.75
19–19.9	.80	.80	.80	....	....	.80	.80	....	.50	.62	.62	.62	.62	.75	$1.65	70	.80
20–20.9	.85	.85	.85	....	....	.84	.84	....	....	.68	.68	.68	.68	.80	for	.70	.85
21–21.9	.89	.89	.89	....	....	.88	.88	.89	....	.74	.74	.74	.74	.85	55°	.86	.86
22–22.9	.93	.93	.93	....	....	.91	.91	.92	....	.80	.80	.80	.80	.90	gravity	.87	.87
23–23.9	.97	.97	.97	....	....	....	.94	.95	....	.85	.85	.85	.85	.95	and	.90	.90
24–24.9	1.01	1.01	1.01	1.01	....	....	.97	.98	....	.90	.90	.88	.88	.98	over	.94	.94
25–25.9	1.05	1.05	1.05	1.05	....	....	1.00	1.01	....	.95	.95	.91	.91	1.01	....	.98	.98
26–26.9	1.09	1.09	1.09	1.09	....	....	1.04	1.04	....	1.00	1.00	.94	.94	1.04	....	1.02	1.02
27–27.9	1.13	1.13	1.13	1.13	....	....	1.08	1.07	....	1.05	1.05	.98	.97	1.07	....	....	1.06
28–28.9	1.17	1.17	1.17	1.17	....	....	1.12	1.10	....	1.10	1.10	1.02	....	1.10	....	....	1.10
29–29.9	1.21	....	1.21	1.21	....	....	1.16	1.15	....	1.16	1.16	1.06	....	1.13	....	....	1.14
30–30.9	1.25	....	1.25	1.25	....	....	1.20	1.20	....	1.22	1.22	1.10	....	1.16	....	....	1.18
31–31.9	1.30	....	1.30	1.30	....	....	....	1.25	....	1.28	1.28	1.14	....	....	....	....	1.23
32–32.9	1.35	....	....	1.35	....	....	....	1.30	....	1.34	1.34	1.18	....	....	....	....	1.28
33–33.9	....	....	....	1.41	....	....	....	1.35	....	1.40	1.40	1.22	....	....	....	....	1.34
34–34.9	....	....	....	1.47	$1.16	....	....	1.40	....	....	1.46	1.26	....	....	....	....	....
35–35.9	....	....	....	1.53	1.22	....	....	1.45	....	....	1.52	1.30	....	....	....	....	....
36–36.9	....	....	....	1.59	1.28	....	....	1.50	....	....	....	....	....	....	....	....	....
37–37.9	....	....	....	1.65	1.34	....	....	1.55	....	....	....	....	....	....	....	....	....
38–38.9	....	....	....	1.71	1.40	....	....	1.60	....	....	....	....	....	....	....	....	....
39–39.9	....	....	....	1.77	1.46	....	....	1.65	....	....	....	....	....	....	....	....	....
40–40.9	....	....	....	1.83	1.52	....	....	....	....	....	....	....	....	....	....	....	....
41–41.9	....	....	....	1.89	1.58	....	....	....	....	....	....	....	....	....	....	....	....
42–42.9	....	....	....	1.95	1.64	....	....	....	....	....	....	....	....	....	....	....	....

*Santa Maria and Ventura postings are by Union Oil Co. Union Oil Co. posts same prices in all above fields as Standard except it does not post prices in Wheeler Ridge, Whittier, La Habra, Newhall and Kettleman Hills. Standard does not contract for crude testing 11-13.9 gravity, but pays 45c a barrel when purchased.

†Richfield posted only to 30-30.9 at $1.25.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Feb. 10	Feb. 3
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums cwt.	$0.80	$0.80
Sal Soda wks.	$1.00–1.05	$1.00–1.05
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of, cwt.	$3.10–4.00	$3.10–4.00
Liquid Chlorine, tank cars, wks., lb.	3.50–5.00	3.50–5.00

Compounders' Supplies

	Feb. 10	Feb. 3
Vegetable Oils		
Linseed carloads, spot, lb.	14.00	14.00
Tanks, spot	13.20	13.20
Soya Bean, Tank, coast, lb.	9.50	9.50
Oleic Acid		
Distilled, tanks, lb.	9.25–9.50	9.75
Distilled, bbls., lb.	10.125-10.375	10.125-10.375
Saponified, tanks, lb.	9.25	9.75
Saponified, bbls., lb.	10.125–10.625	10.625
Lard Oils		
Prime Winter Strained, lb.	13.50	13.50
Extra Winter Strained, lb.	12.50	12.75
Extra, lb.	12.00	12.25
Extra No. 1, lb.	11.25	11.25
No. 1, lb.	11.00	11.00
No. 2, lb.	10.75	10.75
Tallow oil, lb.	9.50–10.00	8.75–9.00
Neatsfoot Oil		
Pure, bbls., lb.	13.50	13.75
Extra, bbls., lb.	11.50	11.75
No. 1 bbls., lb.	11.00	11.25
Cold Pressed, lb.	18.00	15.50
Fish Oils		
Menhaden Oil		
Light Pressed, gal.	63	65
Light Pressed, tank cars, N. Y., gal.	53	55
White bleached, gal.	72	72
Yellow bleached, gal.	68	68
Whale, extra winter bleached, gal.	85	85
Naval Stores		
Steam, distilled turpentine, N. Y., gal.	51	51
Steam distilled turpentine, Savannah, gal.	46	46
Gum turpentine, N. Y., gal.	57	57
Gum turpentine, f.o.b. cars Savannah, gal.	50.50	50.50
Wood Rosin, N.Y., gal.	$7.50	$7.50
Wood Rosin F, Savn'h, bbl	$6.70	$6.70
Gum Rosin B, N. Y., bbl	$8.80	$8.80
Gum Rosin B, f.o.b. cars Savannah, bbl.	$7.20	$7.20
Rosin oil, pure, gal.	60	60
Rosin oil, compounded, gal.	60	60
Pine Tar		
Kiln burnt, bbl.	$11.00–13.00	$11.00–13.00
Retort, bbl.	$13.50–14.50	$13.50–14.50
Alcohol		
Denatured Formula 5, in bbls., per gal.	58–62	57–64

Code and One-Stops on Ohio Jobbers' Program

CLEVELAND, Feb. 6

THE spring convention and equipment exhibit of the Ohio Petroleum Marketers Association will be staged Feb. 19, 20 and 21 at the Deshler-Wallick Hotel, Columbus.

The code of marketing ethics will be discussed by Harry T. Klein, general counsel, The Texas Co., New York, and chairman of the national committee on interpreting the code. A discussion by jobbers will follow and any questions will be answered by Mr. Klein.

What the future holds for the oil jobber will be told by Frank W. Lovejoy, general sales manager, Vacuum Oil Co., New York, whose address is "Looking Ahead with the Ohio Petroleum Marketers Association"; and John C. Howell, vice president, Associated Consulting Economists, Inc., New York, who will talk on "A Size-up of Business Conditions for 1930."

There will be 10-minute talks by Ohio oil men, and one woman, Mrs. Edna Wolff of the Purity Oil Co., Napoleon, O., who will endeavor to answer the question "What Does the Independent Need?"

Other speakers included in the 10-minute talks are: E. H. Jaeger, Fremont Oil Co., Dayton, "The Gas Tax —Should it be More or Less."

J. Roger Day, Day Bros., Edgerton, O., "We Are Going, but by What Route?"

Frank Samuel, Citizens Oil & Gas Co., Canton. "Credit in the Gasoline Business."

Jim Stevenson, Youngstown, "Can Service be Overdone at Stations?"

Other oil men who will speak are: Gen. H. C. Smither, assistant to the president, Indian Refining Co., Lawrenceville, Ill., whose subject is "Industrial Destiny in the Shaping."

G. French, Sinclair Refining Co., New York, who will talk on "We Must Take Up the Slack."

One-stop stations will be discussed by Ken Cloud, editor of the Super Service Station, Chicago.

General business talks will be delivered by Capt. John W. Gorby assistant cashier, Congress Trust & Savings Bank, Chicago, whose subject is "Keeping Pace with Progress"; and Chester Leasure, manager, resolutions and referenda department, Chamber of Commerce of the United States, Washington, who will speak on "This Business of Getting Together"; and Dean Fred E. Ayer, College of Engineering and Commerce, University of Akron, Akron, "Human Engineering."

Many equipment companies have signified their intention of displaying equipment.

There will be plenty of musical and humorous entertainment. A dance and banquet will complete the entertainment festivities Feb. 20, when Howard Justice, radio artist for the Standard Oil Co, of Ohio will sing. Roy B. Francis, Pure Oil Co., Chicago, is master of ceremonies.

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Pennsylvania Oil Men To Hear Holliday

HARRISBURG, Pa., Feb. 7.—The spring convention and equipment exhibit of the Pennsylvania Independent Oil Men's Association will be held at the Elko hotel Philadelphia March 11 and 12.

W. T. Holliday, president of the Standard Oil Co. of Ohio, Cleveland, will be one of the principal speakers. Advertising the code of ethics, and costs are among the subjects for discussion during the meeting.

Fifty booths will display equipment, according to R. A. Overholser, executive secretary.

Jack Shlifer is in charge of entertainment. A sight seeing trip will take delegates through a large plant making oil industry equipment.

Tax Unconstitutional

INDIANAPOLIS—Federal District Court for southern Indiana has held void and unconstitutional the chain store licensing bill enacted in 1929 by the general assembly. The bill proposed to tax chains of 20 or more stores from $3 to $25.

W. P. R. A. Puts Out Tax Map

TULSA, Feb. 7.—Amounts of gasoline taxes in effect in various states on Dec. 31, 1929 are indicated on a map recently published by the Western Petroleum Refiners Association.

Better Than Ivory Soap

RICHMOND, Va.—The gasoline used in Virginia was judged by the state as 99.87 per cent pure during the past fiscal year, when 75,000,000 gallons were tested, out of which 91,200 gallons failed to meet state specifications.

Financial Notes

Ohio Oil Co.—To consummate acquisition of Illinois Pipe Line Co. stock of the Illinois company now is being deposited for new 6 per cent preferred of Ohio Oil. No date has been set for expiration of the offer.

Galena-Signal Oil Co. of Texas—Amendment to charter has been filed to reduce capital stock from $12,000,000 to $5,000. Most of the assets have been disposed of to the Texas Corp.

Standard Oil Co. of New York—L. L. Marcell, chairman of White Eagle Oil & Refining Co., and John A. Brown have been elected directors. Mr. Brown also was elected a vice-president.

Vacuum Oil Co.—James J. Maguire, Harold F. Sheets and Charles L. Jones have been elected to board. G. P. Whaley, president, was elected chairman of the board; Charles E. Arnott, formerly vice-president, was elected president; and Herbert Baker, formerly vice-president and treasurer, was elected vice-chairman of the board.

Union Tank Car Co.—Initial quarterly dividend of 40 cents on new no-par stock payable March 1 to stock of record Feb. 15, equivalent to $6.40 on old stock which was split 5 for 1. Old stock was on $5 annual basis.

Rio Grande Oil Co.—Application made to list additional 250,000 shares of no-par capital stock on New York Stock Exchange.

Sun Oil Co.—Offering has been made of $5,000,000 6 per cent cumulative preferred stock, priced at $103, to yield 5.83 per cent. Money is to defray cost of improvements completed or in process of construction.

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Transactions in Oil Shares on New York Stock Exchange

1928 High	1928 Low	1929 High	1929 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Feb. 8 Sales	First	High	Low	Last	Change
43⅞	27⅛	42⅝	17½	(sh) 922,075	N.P.	Amerada Corp	50cQ	Jan. 31, 30	4,200	19¾	20¼	19	20¼	+ ¾
85	51¼	64¾	12½	(sh) 209,180	N.P.	American Republics Corp	....	....	17,400	23	27⅛	22½	23¾	+ 1½
53⅜	37½	47¼	35	$56,000,000	$25	Associated Oil	50cQ	Dec. 31, 29	60	....	35¾	35	35⅛	0
62½	50	77⅞	30	50,000,000	25	Atlantic Refining	‡25cQ	Dec. 16, 29	36,000	39	39⅝	37⅜	38½	— ⅛
53	20	49⅛	20	47,261,125	25	Barnsdall Corp. A	50cQ	Feb. 7, 30	20,000	23¼	23¾	22⅜	22⅜	— ⅜
51⅜	20	49	38⅜	300,525	25	do B	50cQ	Feb. 7, 30	....	....	....	....	....	....
24½	12¼	32⅞	13¼	(sh) 956,075	N.P.	Beacon Oil	....	....	3,900	15½	15½	14½	14¾	— ¾
36	25¼	34½	25	$51,524,150	$25	California Petroleum	....	Jan. 1, 29	100	28	28	28	28	0
....	....	37¾	18	(sh) 4,634,163	N.P.	Continental Oil (Delaware)	....	....	31,800	23¼	23¼	21½	21½	— 1½
94⅞	68	94¾	42¼	21,031,400	100	General Asphalt	$1Q	Dec. 16, 29	12,700	53	55¾	52	55	+ 1¾
141	110⅛	138	103½	6,628,200	100	do pfd	$1.25Q	Dec. 2, 29	....	....	....	....	....	....
67	79	109	23	25,000,000	100	Houston Oil	....	....	79,800	59⅜	70⅜	58¾	67½	+ 9¼
38⅜	21¾	39¼	17¾	(sh) 1,333,157	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 30	5,900	22½	22¼	21⅝	21⅞	— ⅜
39⅝	9	53	13	$4,299,190	$10	Indian Refining	....	Dec. 15, 20	15,600	23⅜	23¾	20½	21	— 2⅝
37¼	8½	51¼	11½	4,550,110	10	do ctfs	....	....	10,500	22⅜	22⅜	19⅝	20	— 2
185	140	165	160	1,977,700	100	do pfd. new	$1.75Q	Jan. 1, 30	....	....	....	....	....	....
39⅛	27⅜	38⅜	16½	3,992,387	N.P.	Lago Oil & Transport	....	May 2, 27	600	22	22½	22	22½	0
119¾	9⅜	18	7	(sh) 1,187,298	N.P.	Louisiana Oil Refining	....	....	7,400	9	9⅜	8⅝	8⅞	— ⅛
96	78	100¼	80	$4,000,000	$100	do pfd	$1.62½	Nov. 15, 29	140	89½	89½	88	89½	+ 5½
25½	12½	18½	6	(sh) 330,000	N.P.	Maracaibo Oil	....	....	....	....	....	....	....	....
360	250	295	176	$45,942,800	$100	Mexican Petroleum	$3Q	Jan. 20, 30	....	....	....	....	....	....
....	....	....	....	12,000,000	100	do pfd	$2Q	Jan. 20, 30	....	....	....	....	....	....
73	45⅛	69⅜	9¼	(sh) 995,500	N.P.	Mexican Seaboard	....	Nov. 15, 24	53,700	21⅛	21⅜	19¼	19½	— 1⅜
44½	25⅛	39⅞	22⅛	(sh) 1,857,461	N.P.	Mid-Continent	50cQ	Nov. 15, 29	6,800	26½	26½	25½	25½	— 1
120½	103¼	121	120¼	$6,718,000	$100	do pfd	$1.75Q	Dec. 1, 29	....	....	....	....	....	....
7⅜	2⅜	5⅛	⅝	23,849,720	10	Middle States	....	July 1, 23	....	....	....	....	....	....
5⅞	1½	3⅝	⅞	5,950,500	10	do ctfs	....	....	2,900	1⅛	1⅛	1	1	0
2¼	1	1½	⅝	(sh) 3,500,000	N.P.	Pacific Oil	....	....	3,100	1⅛	1⅛	1⅛	1⅛	0
55½	38¼	69	40¼	$50,000,000	$50	Pan American P. & T	....	Oct. 20, 27	100	54	53	53	53	— 1
58⅞	37¾	69¼	40½	121,101,400	50	do B	....	Oct. 20, 27	5,300	53	54	53	53⅛	+ ⅛
28⅜	15½	17½	13½	(sh) 400,000	N.P.	Pan. American Western B	....	Jan. 30, 27	....	....	....	....	....	....
21⅜	11½	15¼	3	(sh) 199,370	N.P.	Panhandle P. & R	....	....	700	5	5	4⅝	4⅝	— ⅜
106¼	70	76	47½	$2,935,200	$100	do pfd	....	July 2, 23	100	47½	47½	47½	47½	0
53⅞	35¼	47	24¼	(sh) 2,406,803	N.P.	Phillips Petroleum	‡50Q	Jan. 2, 30	12,400	33⅞	34	33	33⅛	— ⅝
5¼	½	3⅜	1	$29,622,925	$25	Pierce Oil Corp	....	....	2,800	1⅛	1¼	1	1⅛	0
50	16¼	51½	20	15,000,000	100	do pfd	....	Feb. 1, 22	400	22	22	21	22	+ ½
6⅝	3½	5⅞	⅛	(sh) 2,500,000	N.P.	Pierce Petroleum	....	....	1,600	2⅝	2⅝	2⅛	2⅛	— ¼
64⅝	59½	65⅝	40½	$60,636,450	$25	Prairie Oil & Gas	‡50cQ	Dec. 31, 29	5,900	51½	52½	51½	51⅝	+ ⅛
....	....	65	45	101,250,000	25	Prairie Pipe Line	‡76cQ	Dec. 31, 29	2,500	59¾	60	59½	60	+ ¼
29⅞	16	25⅞	4	37,450,850	50	Producers & Refiners	....	Sept. 15, 23	300	8½	8½	8	8	— ½
49⅝	41	46⅝	25½	2,845,350	50	do pfd	....	May 1, 25	....	....	....	....	....	....
31¼	19	30¾	20	75,959,255	25	Pure Oil Co	37½cQ	Dec. 16, 29	75,600	23⅞	23⅞	23⅛	23½	— ⅛
119	108	116	108	13,000,000	100	do 8% pfd	$2Q	Jan. 2, 30	290	113½	113½	113	113½	+ ½
56	23⅛	49⅝	20	47,127,725	25	Richfield Oil	50cQ	Nov. 15, 29	14,100	25½	25⅝	23½	24	— 1½
....	....	42½	15	(sh) 1,200,000	N.P.	Rio Grande Oil Co	50cQ	Jan. 25, 30	6,600	18⅞	19¼	17⅞	18	— ⅝
64	44¾	64	43⅛	(sh) 546,646	$13.40	Royal Dutch N. Y. shares	$1.3415	Feb. 5, 30	25,800	52¾	53¼	51¾	52⅛	— ¾
57½	39⅜	55¾	43	(sh) 65,203,000	£2	Shell Transport & T	97c	Jan. 28, 30	100	....	47	45¾	47	+ 1¾
39⅜	23¼	31¾	19	12,254,979	N.P.	Shell Union Oil	35cQ	Dec. 31, 29	12,600	22½	23¼	22½	22¾	0
27¼	18⅛	40¾	15	$8,357,280	$10	Simms Petroleum	40cQ	Dec. 14, 29	7,000	27⅞	28¼	25⅝	25¾	— 1⅜
46¾	17⅜	45	21	5,494,095	N.P.	Sinclair Consolidated	50cQ	Jan. 15, 30	58,500	25⅜	25½	23⅞	24¼	— 1⅛
110	102½	111	103	$16,025,200	$100	do pfd	$2Q	Nov. 15, 29	200	110½	110½	110¼	110¼	— ¼
42⅝	25	46½	28	27,396,590	25	Skelly Oil Co	50cQ	Dec. 16, 29	4,600	31½	31¾	30⅛	30½	— 1¾
80	53	81⅞	51½	(sh) 13,016,435	N.P.	S. O. California	‡62½cQ	Dec. 16, 29	36,000	60¾	61¼	59	59⅛	— 1⅜
59¾	37¾	83	48	$612,095,850	$25	S. O. New Jersey	‡25cQ	Dec. 16, 29	380,100	65⅛	65⅜	61⅞	62⅜	— 2½
45½	28¾	48⅛	31¾	434,094,575	25	S. O. New York	40cQ	Dec. 16, 29	25,400	33⅜	33⅜	32⅜	32⅜	+ ⅛
77	31½	84¾	55	(sh) 1,297,847	N.P.	Sun Oil	‡25cQ	Dec. 16, 29	1,600	56½	57⅞	56½	56⅝	— ⅞
110	110	105½	100	$5,000,000	$100	do pfd	$1.50Q	Dec. 2, 29	1,280	....	105	104½	105	0
14¼	2½	24	5¼	(sh) 1,304,698	N.P.	Superior Oil Corp	....	Dec. 20, 20	4,300	6⅛	6⅜	5⅞	6	— ⅜
74¾	50	71⅞	50	$211,082,925	$25	The Texas Corp	75cQ	Jan. 1, 30	24,200	54¾	55	53	53⅜	— 1½
26⅝	12⅛	23⅞	9¾	8,380,340	10	Texas Pacific Coal & Oil	2½%ₛ	Dec. 31, 29	2,300	10	10¼	9⅝	9⅝	— ¼
41½	19⅝	40	14	(sh) 2,179,275	N.P.	Tide Water Oil Co	20cQ	Dec. 31, 29	200	21¾	21¾	20	20	+ ¾
100⅛	86¾	97½	85⅛	$20,321,000	$100	do 5½% pfd	$1.25Q	Nov. 15, 29	1,800	88	88	87½	88	— 1
25	14¾	23½	10	(sh) 4,877,976	N.P.	Tide Water Associated	....	Aug. 1, 27	14,000	12⅛	12¼	11½	11⅝	— ¼
91¾	81⅞	90⅞	74⅛	$72,989,200	$100	do pfd	$1.50Q	Jan. 2, 30	1,000	82	83⅞	82	82½	0
14½	6¾	15¼	5⅛	(sh) 3,842,029	N.P.	Transcontinental Oil	....	....	71,600	9⅛	9¼	8½	8½	— ⅝
58	42¾	54½	42⅛	$40,858,375	$25	Union Oil of California	‡50cQ	Feb. 10, 30	11,600	44¼	44⅞	42⅝	42⅝	— 1⅝
128½	110	163¾	121⅞	31,101,200	100	Union Tank Car Co	$1.25Q	Dec. 2, 29	1,100	35⅞	35⅞	35⅛	35⅜	+ ⅜
44⅞	26	42⅞	15	(sh) 488,359	N.P.	Warner Quinlan	50cQ	Jan. 2, 30	9,900	19½	19½	18¼	18¾	— ½
38	20⅛	38	25	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 30	1,500	28	28	27⅜	27⅜	— ⅝
22⅛	17¼	29¾	12⅞	(sh) 428,967	N.P.	Wilcox Oil & Gas	....	May 10, 28	600	14	14½	13¾	14½	+ ⅜

•New High †New Low xEx-Dividends ‡Also Extras s-Stock Total Sales 1,138,570

Tank Wagon Tables

(Continued from Page 109)

	Gasoline T.W. Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
MANITOBA				
Winnipeg	21.5 3	24.5	28	21.5
SASKATCHEWAN				
Regina	26 3	29	33	26
ALBERTA				
Edmonton	27.5 5	32.5	36	27.5
Calgary	23.5 5	28.5	32	23.5
BRITISH COLUMBIA				
Vancouver	23 3	26	30	24
QUEBEC				
Montreal	20.5 5	25.5	29	21.5
Quebec City	21.5 5	26.5	30	22.5
Three Rivers	21.5 5	26.5	30	22.5
NEW BRUNSWICK				
St. John	22 5	27	31	24
Moncton	22 5	27	31	24
NOVA SCOTIA				
Halifax	22 5	27	31	24
Sydney	22 5	27	31	24
PRINCE EDWARD ISLAND				
Charlottetown	22 5	27	31	24

Note: In districts surrounding these points 1c additional is added to city price.

Barnsdall Head Denies Merger Report

TULSA, Feb. 8.—The following statement has been circulated by the Barnsdall Corp. to its salesmen and dealers:

"Denial that a merger of any kind is under consideration by the directors of the Barnsdall Corp. was made by E. B. Reeser, president of that company. Mr. Reeser said: 'Rumors have had Barnsdall merged nearly every month during the past two or three years. There is always a possibility today of any oil company participating in a merger, but as far as anything definite concerns our company, there is nothing to it. Our company is not, nor will it be, on the auction block.'"

As published in NATIONAL PETROLEUM NEWS two weeks ago, a preliminary check of Barnsdall properties has been under way in the Mid-Continent by the Sinclair interests. It was then stated that no formal offer had been made and that the investigation had been inspired by banking interests commonly interested in the two companies.

Pittsburgh Stock Exchange

Transactions Week Ended Feb. 7, 1930

	Sales	High	Low	Last	Change
Ark. Nat. Gas	10,947	14⅞	9¼	13½	+4½
do pfd	1,385	7¾	7⅝	7¾	+ ⅛
Devonian Oil	582	10	10	10	— ½
Dixie & Util	20	15	15	15	—1
Long Star Gas	9,454	39⅞	37¾	37⅞	+ ⅛
do pfd	435	106	104¾	105½	— ½
Pet. Exploration	20	30	30	30	0
Plymouth Oil	155	27½	26	27½	+1
Pittsburgh Oil & Gas	200	3	3	3	0
Shamrock Oil & Gas	885	17⅞	17½	17⅜	—⅛

Pittsburgh Curb Market

Transactions Week Ended Feb. 7, 1930

	Sales	High	Low	Last	Change
Arkansas Gas A	4,255	14	9¼	13⅛	....
Gulf Oil	200	142	142	142	....
Phoenix Oil	1,000	.30	.30	.30	....

THE OIL INDUSTRY EXCHANGE

Positions Wanted

BULK PLANT EXECUTIVE: thoroughly experienced in sales and operation of bulk plant, know oils and gasoline, having been connected for several years with the refining branch of the industry from laboratory to superintendent. Present location western New York. Address Box 489.

REFINERY SUPERINTENDENT—desires connection with progressive refinery in the capacity of superintendent or assistant. Address Box 490.

REFINERY SUPERINTENDENT with ten years experience refining gasoline, kerosene and fuel oils including cracking, desires connection. References. Address Box 492.

GRADUATE CHEMIST—Eleven years experience in the analysis, development and manufacture of all kinds of greases and industrial oils. Now employed as superintendent of grease, and industrial oil plant. Age 35. Address Box 493.

SALESMAN—EXECUTIVE—age 35 years, with major oil company experience in sales and land departments, desires state sales connection with large refinery or supply company or in land department with oil company. Want headquarters at Ada—the ideal city for factory sites. Address Box 331, Ada, Okla.

SALES EXECUTIVE AVAILABLE

A man with several years experience as a director of sales will be available about Jan. 15. Has personally sold as well as directed sales of gasoline, motor oils and grease to the jobbing trade. Has had unusual experience in compounding and managing grease and oil compounding plants. Still under forty-five years of age, healthy, am in a position to travel anywhere.

Address Box 468
c/o National Petroleum News

Situations Open

SALESMAN—NORTHWEST

Want man acquainted with oil jobbers over Minnesota, North and South Dakota and preferably familiar with lubricating oils. Refinery manufacturing exceptional line of winter oils. State age, experience and salary expected.

Address Box 494

EXPERIENCED SALESMAN of ability, qualified to sell Oil Jobbers handling Lubricating Oils, Naphtha, etc., on Eastern Seaboard. Salary. Address Box 495.

DRAFTSMEN

Thoroughly experienced on Oil Refinery Work, to Lay Out, Design and Check. Permanent Positions offered to qualified applicants. Submit full details in first letter. Location in Ohio.

Box No. 473

Situations Open

OIL SALESMEN—Michigan, Indiana, Pennsylvania territories—only men with previous carload marketing success considered. Give complete detail employment, gallonage, references, income desired. Write Box 491.

Business Opportunities

ESTABLISHED ENGLISH INDEPENDENT PETROL COMPANY wants to be in touch with American Petroleum Refiner for agency in United Kingdom. Reply in first instance care National Petroleum News, Box 484.

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L. D. 136

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Washington, D. C.

Miscellaneous

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Copy must reach us not later than Friday preceding date of issue.

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For Sale

500 USED GASOLINE FILLING STATION PUMPS for sale, of various makes at a bargain if taken in lots of 25 or more.

J. B. Thompson, Purchasing Dept.,
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FOR SALE—Leach condensers—Radojet pumps—Wheeler gas cooler—Coastville vapor separator—hot oil pump (New)—Viking pumps—flow meters—tanks. First class condition, priced to move quickly. Write or wire. Edw. W. Lawler, Inc., Metuchen, N. J.

WE OFFER THE FACILITIES OF, or will sell entire or part of, complete compounding plant; railroad siding, storage, with small well-established business in heart of money-center of New Jersey.

Address—640 Central Ave., East Orange, N. J.

MICHIGAN STATE LEASES

Oil and gas leases on State Lands will be offered at public auction February 27 in the Senate Chamber of the Capitol Building, Lansing. 36,000 acres in Towns 21 & 22 North, Ranges 1, 2, 3 & 4 East, Ogemaw County; Towns 19 & 20 North, Ranges 3, 4, 5, 6 & 7 East, Arenac County; Town 21 North, Range 16 West, Manistee County; Town 16 North, Range 3 West, Isabella County; Town 15 North, Range 2 West, Midland County; Town 12 North, Range 12 West, Newaygo County. For list of descriptions, lease form, rules and regulations, write Lands Division, Department of Conservation, Lansing, Michigan.

Equipment

FOR SALE—Two-ton White, six-hundred gallon, three compartments. $500. Six cylinder 1926 Union, 600-gallon, four compartments, Dual Pneumatics. A-1 condition. $800.

WILL BUY—1000-gallon four-compartment truck tank.

The Lyden Oil Company,
Youngstown, Ohio

Advertisers having box numbers should be addressed in care of National Petroleum News, 1213 West 3rd Street, Cleveland, Ohio, unless otherwise specified.

Standard Oil Stocks on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Feb. 8 Sales	First	High	Low	Last	Change
22⅜	14⅞	18¾	14¼	£4,126,460	£ 1	Anglo-American Oil	36c	June 5, 29						
21¼	15	18	13	.....	....	do certificates	36c	June 5, 29	2,600	16½	16⅞	15	16⅞	— ⅛
20½	14⅜	17	11	.....	£ 1	do ctfs. non-voting	36c	June 5, 29	200	17	17	16	16	— 1
5	1¼	2½	.75	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	.....	.....	.....	.....	.....	.....
9¾	3¼	4⅛	1	$10,000,000	$50	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
56	44½	46½	25	$1,000,000	25	Borne-Scrymser	$1 S.A.	Oct. 15, 29	1,000	25	25	24¾	24¾	— 4⅛
76	58	74¼	55	10,000,000	50	Buckeye Pipe Line	‡$1Q	Dec. 14, 29	2,100	67¾	67¾	66½	66½	— 1⅝
161	117¼	210	130	3,000,000	25	Chesebrough Mfg	‡$1Q	Dec. 30, 29	100	162¾	162¾	162¾	162¾	0
23	16	29	8⅛	36,123,350	10	Continental Oil	.....	Dec. 15, 27	200	13⅛	13⅛	13⅛	13⅛	— ⅞
17½	9½	11¾	5⅝	.....	N.P.	Creole Petroleum	.....	.....	8,800	6½	6¼	6⅛	6¼	+ ⅛
82	67	95	40	1,500,000	50	Cumberland Pipe Line	$1Q	Dec. 16, 29	150	50	50	47	47	— 5¾
88	64⅜	70½	42	5,000,000	100	Eureka Pipe Line	$1Q	Feb. 1, 30	150	52	52	50	51	— 3¾
13	4¾	7	3	16,000,000	100	Galena Signal Oil	.....	June 30, 25	100	3	3	3	3	0
86	26	90	73½	4,000,000	100	do new pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
89¾	35	88	71½	2,000,000	100	do old pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
114¾	59¼	128	74⅛	73,685,700	25	Humble Oil & Refining	50cQ	Jan. 1, 30	8,900	83½	85⅛	81½	84	— ⅞
290½	176½	340½	260	20,000,000	100	Illinois Pipe Line	$10S.A.	Dec. 16, 29	2,900	308¾	310	307¾	307¾	— 1
104	56¾	41	22	(sh) 26,421,768	N.P.	Imperial of Canada	12½cQ	Dec. 2, 29	6,200	25½	25⅝	24⅝	25	— ⅝
91⅞	74⅝	41⅞	26	$1,000,000	$10	Indiana Pipe Line	‡50cQ	Nov. 15, 29	1,900	40⅛	40½	39¾	39¾	— 1⅛
55	35	37½	15	(sh) 14,247,088	N.P.	International Petroleum	12½c	June 25, 29	8,800	20½	20½	19⅝	19⅝	— ⅝
32¾	19⅜	25⅞	10½	$6,363,350	12.50	National Transit Co	‡25cQ	Dec. 16, 29	1,400	21⅜	21⅜	20⅞	21	— ⅜
75	38½	85	72	1,000,000	10	New York Transit	‡40cQ	Jan. 15, 30	.....	.....	.....	.....	.....	.....
....	....	....	....	.....	....	do new	.....	.....	.....	.....	.....	.....	.....	.....
69	56½	63	41	2,000,000	50	Northern Pipe Line	$2 S.A.	Jan. 2, 30	200	53	53	53	53	— 1
83½	58½	79⅞	64⅜	60,000,000	25	Ohio Oil Co	‡50cQ	Dec. 14, 29	1,000	70¾	70¾	70	70¼	— ½
84	28	44½	18⅝	10,000,000	25	Penn Mex. Fuel	$1	Dec. 14, 29	500	22⅜	22½	22⅜	22½	+ 2
220	167	50	29	4,000,000	25	Solar Refining	$1.25S.A.	Dec. 20, 29	.....	.....	.....	.....	.....	.....
19	12	23½	13	1,000,000	10	Southern Pipe Line	$10	Dec. 31, 29	300	16½	16½	16½	16½	+ ⅛
71⅞	36¾	60¼	35⅛	30,000,000	25	South Penn Oil	‡50cQ	Dec. 30, 29	1,300	40½	40⅝	38⅛	38⅜	— 2⅛
102	70	70	45	1,750,000	50	South West Pa. Pipe Lines	$1	Dec. 31, 29	150	62	63	60	60	— 4
95⅞	70⅜	63	45	348,175,069	25	S. O. Indiana	‡62½cQ	Dec. 16, 29	28,200	53⅞	53⅞	52⅝	52¾	— 1⅛
27¾	15	33¾	18	8,000,000	25	S. O. Kansas	‡50cQ	Dec. 16, 29	700	28⅝	29	28	28	— ½
49	44	46⅜	29	25,654,516	10	S. O. Kentucky	‡40cQ	Dec. 31, 29	7,800	34⅜	35¾	34¼	34½	+ ⅛
54⅜	39⅞	50¼	40	4,649,225	25	S. O. Nebraska	‡62½cQ	Dec. 20, 29	300	47	48⅛	47	48⅛	+ 1⅜
134	71	129	60	14,000,000	25	S. O. Ohio	62½cQ	Jan. 2, 30	100	84¼	84¼	84¼	84¼	— ¾
125	116	125½	106	7,000,000	100	do pfd	$1.75Q	Dec. 2, 29	.....	.....	.....	.....	.....	.....
23½	16	18	5⅛	861,466	25	Swan Finch	30c	Jan. 15, 29	10	13½	13½	13½	13½	— 2¾
111	72	133¾	75	126,154,000	25	Vacuum Oil	‡$1Q	Dec. 20, 29	3,200	96¾	96¾	93¼	93¼	— 3⅜

•New High †New Low ‡Also Extras

Independent Oils on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Par Value	Stocks	Transactions Week Ended Feb. 8 Sales	First	High	Low	Last	Change
1½	.53	.72	.125	$5	Amer. Cons. Oilfields	24,300	1/16	1/16	1/8	1/16	0
9½	3½	8⅝	1⅜	N.P.	Amer. Maracaibo	13,400	2	3¼	1⅞	2⅝	+ ¾
4½	2¼	4¾	1	$10	Argo Oil	100	1⅜	1⅜	1⅜	1⅜	+ ⅜
3¾	3⅜	26	3¼	N.P.	Arkansas Nat. Gas	58,000	9½	14⅞	9½	12⅝	+ 3⅜
....	....	24¾	6½	N.P.	do A	224,600	9¼	14¼	9½	12½	+ 3¼
....	....	9	4	10	do pfd	800	7⅞	7⅞	7⅝	7⅝	— ⅛
55	32¼	70	50	N.P.	British American Oil	.....	.....	.....	.....	.....	.....
23⅞	3¾	4⅞	⅜	25c	Carib Syndicate	800	⅜	1	⅜	1	+ ⅛
....	....	68⅛	20	N.P.	Cities Service new	248,200	30	32½	29⅜	31⅞	+ 1⅞
103½	94½	99¼	84	100	do pfd	200	88⅛	89	88⅜	89	+ ¼
9⅝	8⅞	9¼	8	10	do pref. B	100	8¼	8¼	8¼	8¼	0
97	88½	96	81	100	do pref. BB	100	82	82	82	82	+ ½
2¼	1	1½	¼	1	Colombia Syndicate	9,500	1/16	1/16	1/4	1/4	— 1/16
17⅜	9¾	15	3½	N.P.	Colon Oil	28,800	5¾	7⅞	5⅜	7¼	+ 1½
8⅜	6¼	11⅜	2½	10	Consolidated Royal	100	4¼	4¼	4¼	4¼	0
....	....	135	42	N.P.	Cosden Oil Co	800	64⅛	64½	64	64	+ ½
....	....	82	55	....	do pfd	100	61	61	61	61	+ 2½
3¼	.76	2½	¼	N.P.	Crown Central	8,800	3/8	½	3/8	½	+ ⅛
15	6¾	11¾	4	N.P.	Crystal Oil	.....	.....	.....	.....	.....	.....
50	48	51¾	51¼	$100	do pfd	.....	.....	.....	.....	.....	.....
33½	8¾	26	6½	N.P.	Darby Petroleum	8,400	8¼	8½	8¼	8¼	0
2⅜	1	11	2	N.P.	Derby Oil & Refining	1,100	4⅝	4¾	4⅝	4⅝	— 3/8
21⅜	7½	44	5	N.P.	do pfd	.....	.....	.....	.....	.....	.....
165	101¾	209	115	$25	Gulf Oil Corp	8,900	142½	142½	134½	134½	— 3⅞
7⅜	5⅜	7½	1⅜	5	Homaokla Oil	.....	.....	.....	.....	.....	.....
....	....	49¼	5	$1	Indian Territory	89,900	35⅛	36⅜	34⅜	34⅜	— 1⅞
3⅜	1	2⅞	⅝	10	Intercontinental Pet.	7,900	1	1¼	1	1⅛	0
3	¼	3⅜	1¼	N.P.	Kirby Petroleum	1,800	2⅜	2⅜	2⅜	2⅜	0
9⅜	5⅛	6½	1	N.P.	Leonard Oil & Dev	400	1⅛	1¼	1⅛	1¼	0
43⅜	20	38⅞	18	N.P.	Lion Oil & Refg	900	21½	21½	20⅞	21	0
....	....	67⅛	28	N.P.	Lone Star Gas	4,800	37¾	39⅞	36¼	38	+ ⅛
1⅞	.50	1¼	¼	1	Magdalena Syndicate	800	¼	¼	¼	¼	— 1/16
48½	32	38½	15	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
8	2¾	6⅜	2¼	N.P.	Mexico-Ohio Oil	900	3½	3½	3½	3½	0
....	....	42	8	N.P.	Missouri-Kan. P. L	8,900	21⅛	22⅛	21⅛	22	+ ⅞
1⅜	.76	1½	¼	1	Mountain & Gulf	.....	.....	.....	.....	.....	.....
28⅛	19½	22⅞	7	10	Mountain Producers	2,900	8¼	8¾	8	8¼	0
....	....	43⅞	24	N.P.	Nat. Fuel Gas (new)	4,900	26⅜	34	26½	32⅝	+ 6⅝
5⅜	4¼	5	2¼	5	New Bradford	800	2⅝	2¾	2⅝	2⅝	0
5½	3	3⅞	2¾	10	New England Fuel	.....	.....	.....	.....	.....	.....
11⅞	7⅛	9⅛	2¼	1	New Mex. & Ariz	300	3¾	3¾	3½	3½	— ¼
15½	11½	24½	11¼	25	New York Petrol	500	15⅜	15⅜	13¼	13¼	— 1¼
13¼	8¾	18½	6¼	N.P.	North Cent. Texas	500	7¾	8	7¾	8	— ½
....	....	19¼	8⅜	N.P.	Oil Stock, Ltd. A	100	8¼	8¼	8¼	8¼	— ⅛
....	....	18¼	10	N.P.	do B	.....	.....	.....	.....	.....	.....
26¼	20	26⅜	12⅛	N.P.	Pacific Western Oil	300	13½	13½	13½	13½	0
6	2¼	3½	½	N.P.	Pandem Oil	3,600	1⅝	1⅞	1¼	1¾	— ⅛
15⅝	8½	10½	2⅜	N.P.	Pantepec Oil	1,000	3½	3⅞	3¼	3¼	— ½
20	10⅜	25½	22½	$25	Paragon Refg. B. ctfs.	.....	.....	.....	.....	.....	.....
....	....	34½	17	N.P.	Petroleum Corp	7,500	22⅞	23½	21⅝	22	— ⅝
31⅜	26⅛	37	22	N.P.	Plymouth Oil	800	27⅛	27⅛	26⅛	26⅞	— ⅛
18	8	16	9⅛	25	Red Bank Oil	.....	.....	.....	.....	.....	.....
13	4⅛	8⅛	1⅜	N.P.	Reiter-Foster	700	2⅝	2¾	2⅝	2¾	+ ⅜
31½	23¼	25½	19	$25	Richfield pfd	.....	.....	.....	.....	.....	.....
....	....	29	13	....	Root Refining pfd	.....	.....	.....	.....	.....	.....
12	4⅜	11	3	N.P.	Ryan Consolidated	500	4	4	4	4	0
7⅛	5½	5⅞	1⅜	$10	Salt Creek Cons	100	2	2	2	2	0
35	23¼	25⅞	9	10	Salt Creek Prod	1,500	11	11	10½	10½	— ⅛
3½	1	2½	½	5	Savoy Oil	.....	.....	.....	.....	.....	.....
40	27	33⅜	10	25	Shreveport El Dorado	.....	.....	.....	.....	.....	.....
....	....	24	10	N.P.	Southland Royalty	4,800	11	11	†10	10¼	— ¾
....	....	12	4	N.P.	Sunray Oil	1,800	6¾	7	6⅝	6⅝	— ⅜
....	....	23	7⅛	N.P.	Texon Oil & Land new	1,300	8⅞	8⅞	8⅜	8⅜	— ⅝
22⅜	13	16⅞	11⅝	$10	Tidal Osage	.....	.....	.....	.....	.....	.....
21¼	13⅛	16½	10¼	10	do not-voting	.....	.....	.....	.....	.....	.....
93¾	75	155	80	100	Transcontinental pfd	.....	.....	.....	.....	.....	.....
74¼	18	81⅜	66	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
9½	4¾	6½	1⅜	3	Venezuelan Petrol	4,200	3	3¼	2⅞	3	— ½
....	....	2¼	66	N.P.	White Star Oil	.....	.....	.....	.....	.....	.....
8¼	4⅞	9½	2	1	Woodley Petroleum	700	2⅞	2⅞	2½	2½	— ⅜
¾	¾	5⅜	¼	25	Y Oil & Gas	.....	.....	.....	.....	.....	.....

•New High †New Low

New York Bonds

Week Ending Feb. 7

	High	Low	Last	Change
Assoc. Oil gold 6s	102¾	102¼	102¾	+ ⅛
Atlantic Refg. deb. 5s	100¾	100¼	100¾	+ ¼
Cal. Pet. 5s	99⅝	94½	99⅝	+ ⅝
Cal. Pet. 5½s	99⅞	99	99¾	+ ¼
General Pet. 5s	101	100¼	100¾	+ ⅛
Humble Oil & Refg. 5s	100¼	99¾	100	— ¼
Humble Oil & Refg. 5½s	101¾	101⅜	101½	0
Pan Amer. P & T 7s	104½	104½	104½	0
Pan Amer. P & T 6s	103	102¼	103	+ ½
Pan Amer. P & T 6s	93	92	93	0
Phillips Pet. 5½s	92¼	91½	91¾	0
Pierce Oil deb. 8s	104	104	104	0
Pure Oil 5½s	100	99¾	99⅞	+ ⅛
Richfield Oil Calif. 6s	96	95½	96	+ ½
Shell Union Oil 5s	95¼	94	94¾	+ ¼
Shell Union Oil 5s war	98¾	98	98¾	+ ⅝
Sinclair Con. Oil 7s	101¾	101¼	101¾	0
Sinclair Con. Oil 6½s	100½	99¾	100½	+ ¾
Sinclair Con. Oil 6s D	100½	100¼	100½	+ ¼
Sinclair Con. Crude 5½s	98¼	97½	97¾	+ ¼
Sinclair Pipeline	95⅞	95¼	95⅞	+ ⅜
Skelly Oil 5½s	92	91	91¾	+ ⅛
S. O. N. J. 5½s	103	101½	102¾	+1⅛
S. O. N. Y. 4½s	96⅛	95	95⅜	— ⅛
Union Oil of Calif. 6s A	107½	107	107	— ½
Union Oil of Calif. 1st 5s A	100¾	100¾	100¾	+ ¾
Union Oil of Calif. 5s C	99½	99½	99½	0
Warner-Quinlan 6s	87	86½	87	0
White Eagle Oil 5½s	103⅞	103	103⅞	+ ¾

New York Curb Bonds

Week Ending Feb. 7

	High	Low	Last	Change
Cities Serv. 5s '66	83	83	83	0
Cities Serv. G. 5½s '42	84¼	84	84¼	0
Cities Serv. G. P. 6s '43	92⅛	90½	90½	— ½
Cities Serv. P. 5½s '52	87	86⅛	86⅛	— ⅝
Cont. Oil 5¼s '37	95	94½	94½	— ½
Empire O & R 5½s '42	84⅜	84¼	84⅜	+ ⅛
Gulf Oil 5s '37	100½	100⅛	100½	+ ¼
Gulf Oil 5s '47	100⅞	100⅜	100¾	+ ⅜
Indep. Oil 6s '39	102½	102⅜	102⅜	0
Sun Oil 5½s '39	101⅜	100	101	+ ½
Valvoline Oil 7s '37	103¼	103¼	103¼	0

Oil Dividends

	Amount	Payable	Stock of Record
Ohio Oil q	50c	Mar. 15	Feb. 14
do extra	50c	Mar. 15	Feb. 14
Pure Oil q	37½c	Mar. 1	Feb. 10
S. O. California q	62½c	Mar. 15	Feb. 15
S. O. Indiana q	62½c	Mar. 15	Feb. 15
S. O. New Jersey q	25c	Mar. 15	Feb. 15
do extra	25c	Mar. 15	Feb. 15
Swan-Finch 7% pfd. q	43¾c	Mar. 1	Feb. 10